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THE

ANALYST;

A

MONTHLY JOURNAL OF SCIENCE,

LITERATURE,

AND THE FINE ARTS.

No. VII.



FEBRUARY, 1835.

London:

SIMPKIN, MARSHALL, AND CO.;

STATIONERS' HALL COURT;

WHEELER, DEIGHTON, STRATFORD, RIDGE, HUNT, LEES, RATON, WORCESTER;
JEW AND BRYANT, GUMM, LEA, GLOUCESTER; WILLIAMS, H. DAVIS, BET-
TISON, CHELTENHAM; DAVIS AND SON, VALE, PARKER, JONES, HEREFORD;
EDDOWES, SHREWSBURY; SHARPE, WARWICK; KNOTT, WRIGHTSON AND
WEBB, LANGBRIDGE, BARLOW, DRAKE, BIRMINGHAM; W. PARKE, WOL-
VERHAMPTON; AND ALL BOOKSELLERS IN TOWN AND COUNTRY.

PRICE 1s. 6d.

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“*Τὸν εἰς αὐτὸν*”—in our next.

A highly interesting Paper by Sir Samuel Rush Meyrick, K. H., descriptive of Kenchurch, Herefordshire, with a biographical sketch of the descendants of Owain Glyndwr, will be inserted in the ensuing number.

Reviews of the following Works will appear in our next Number:—Dr. Andrew Combe, on the Principles of Physiology applied to the Preservation of Health, and to the Improvement of Physical and Mental Education.—Lives and Portraits of the Celebrated Women of all Countries, by the Duchess of Abrantes.

We have to acknowledge the receipt of “The Wizard,” a record of the sixteenth century—“Appearances”—“Remarks on the Garden Spider,” and several Poetical effusions—the insertion of which we are compelled to defer for the present.

It is requested that all communications sent to the Editor, may be **POST-PAID**; and Contributions should be sent *early* in the month, *pre-*
ceding that in which they are expected to appear.

☞ The first Volume of “The Analyst,” (with Index, and list of Subscribers,) in cloth boards, price 10s. may be had of *Simpkin, Marshall, & Co. London, and all other Booksellers.*

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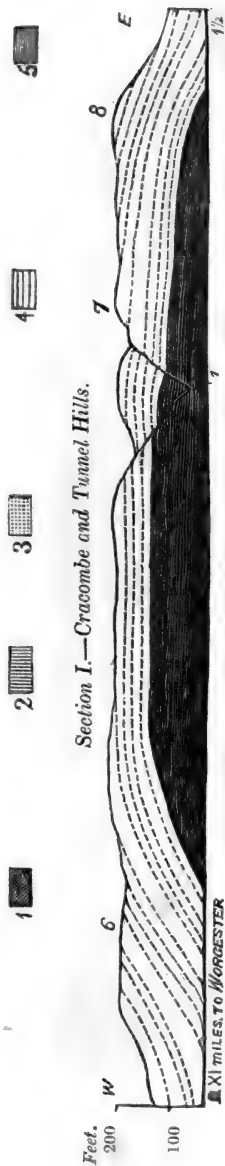
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W. H. L. L. L.
25 NOV. 1916

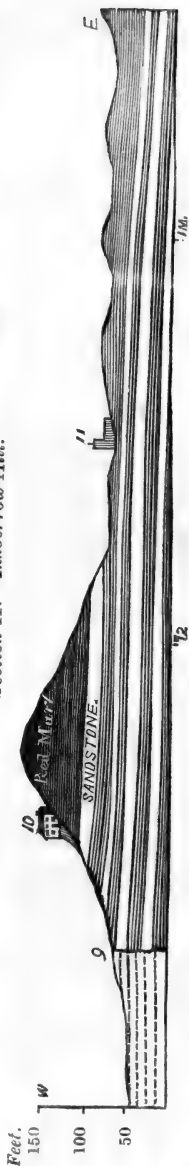




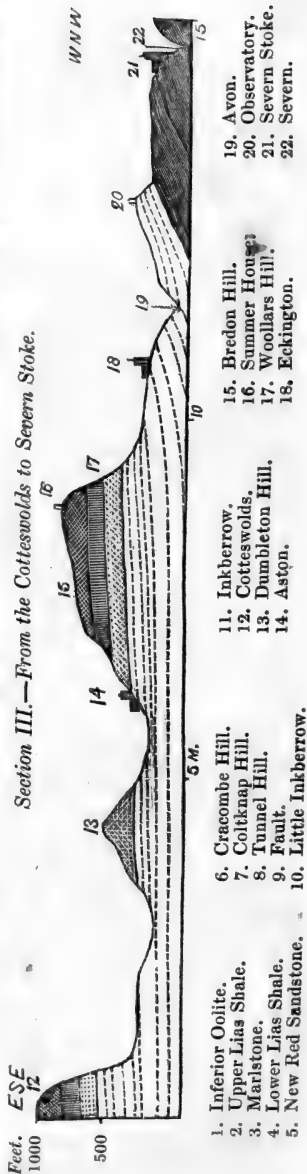


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Section II.—Inkberrow Hill.



Section III.—From the Cotteswolds to Severn Stoke.



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THE ANALYST.

MEMOIR ON THE GEOLOGY OF THE VALE OF EVESHAM.

(Read before the Worcestershire Natural History Society, March 13, 1834.)

AT the request of several members of the Society, I have been induced to draw up an account of the geology of that part of the county of Worcester with which from personal residence I was best acquainted ;—an investigation which was the more desirable as this district does not appear to have been hitherto very minutely examined by the geologist.

Before I proceed to examine the subterranean structure of the Vale of Evesham, I will give a short sketch of its more obvious and superficial characters. This district is bounded on the E. by the lofty escarpment of the Cotteswold Range, and on the S. by Dumbleton and Bredon Hills, which constitute outliers of the same geological structure as the Cotteswolds, with which they have doubtless at some period been continuous. To the N. and W. this district has no natural boundaries, and might without impropriety be extended over nearly all Worcestershire, which is in fact one vast vale, of which the S. E. angle is denominated the Vale of Evesham.

The Vale of Evesham has an undulating surface, and, in some parts of it, hills occur of considerable steepness, and from 200 to 300 feet in height. These hills, however, by no means render the term *vale* inapplicable to the district, since from the lofty heights of Broadway and Bredon those minor elevations are barely distinguishable from the plain. From its low and sheltered position the average temperature of the district is high, and hence in a great measure, arises the fertility for which it has been perhaps too highly celebrated. In some parts of the district, indeed, tracts of very good land occur. This is chiefly the case where the surface consists of red marl, diluvial sand, or the alluvial deposits of the Avon. But where the lias clays come to the surface without any foreign admixture, as is the case over a large portion of the district we are considering, a wet tenacious soil is the result, requiring great labour and attention on the part of the farmer, and often rewarding him with very inferior crops. It would seem, indeed, that the lias is better suited for garden-ground than for agriculture. Near Evesham and Pershore are some extensive and valuable

market gardens, in which the lias clays, by a high degree of manuring and cultivation, are rendered very productive.

The whole drainage of the Vale of Evesham falls by a variety of small brooks and watercourses into the Avon. This river, though immortalized by the poets, has little to recommend it in the eyes of the painter. The clayey soil through which it flows imparts a considerable degree of muddiness to its waters at all seasons, and being kept by means of locks nearly on a level with the surrounding meadows, it loses all the picturesque effect which its neighbour the Severn derives from the steepness of its banks. From being kept constantly full, a moderate quantity of rain suffices to cause a rapid overflow, but as the water seldom remains on the land many hours before it subsides, it deposits but a small portion of the silt which it holds in suspension.

The Avon is commonly flanked on one or both sides by extensive meadows, whose level surface proves them to result from alluvial deposition. These meadows produce heavy crops of hay, which, from its excellent quality, bears generally the highest price in the market.

The bed of the Avon is for the most part deep, with a muddy bottom, with a few exceptions where beds of gravel occur. Its ordinary depth is from 12 to 20 feet, and its breadth from 30 to 50 yards.

Having thus given a sketch of the external features of the Vale of Evesham, we will proceed to examine its internal structure. In so doing it will be most convenient to begin with the highest stratum in the district, and proceed in geological order to the lowest. We shall thus investigate in succession the following formations:—inferior oolite, upper lias shale, marlestone, lower lias shale, and new red sandstone.

The Inferior Oolite occupies the brow of Ilmington and Broadway Hills, and extends thence with great regularity along the brow of the Cotteswolds, into Gloucestershire and Somersetshire. It also forms a cap on the summit of Meon Hill, and of that magnificent outlier Bredon Hill, where it rises gradually towards the W. and N. to the height of about 900 feet above the level of the sea, and may be conveniently examined near the summer-house, which forms a conspicuous landmark to the surrounding country. On Broadway Hill it reaches the height of 1,086 feet, and forms the surface of that elevated table-land. This hill, as well as the whole of the Cotteswold Range, has lately been very carefully surveyed by Mr. Lonsdale, Secretary to the Geological Society, to whose labours those may be referred who wish for further information respecting that district.

The Inferior Oolite is quarried at Bourton-on-the-Hill, and in many other places, as a building stone, for which it is well suited. In appearance it has so close a resemblance to the Great Oolite that in many cases it can only be identified by examining its geological position;—the mineralogical characters of both formations being the same. It commonly consists of a yellowish limestone, in which the “*ova*” or small globular particles from which

it takes its name, are more or less numerous and regular in different specimens. On Bredon Hill, portions of this stone sometimes occur of a brick-red colour, owing probably to the presence of an oxide of iron.

On Bredon Hill the Inferior Oolite appears at some period to have been much disturbed; in the various quarries its strata are seen greatly shattered, and dipping in all directions, often with a high angle of inclination. These dislocations are doubtless of great antiquity, as the present outline of the surface does not seem to be affected by them. The general dip of the Oolite of Bredon Hill is to the S., and hence it descends with a gradual inclination much lower down on that side than on the N., where it terminates suddenly in a bold escarpment.

In many parts of England this formation contains an abundance of fossils, but they seem to be comparatively rare in those portions of it which abut on the Vale of Evesham. There has, however, been no scarcity of animal life in the period of its deposit, for a great part of the Oolite is composed of fragments of shells and corals, but it is rare to find these remains in a sufficiently perfect state to fit them for cabinet specimens. The most numerous shells are those of the genus *Terebratula*.

These researches, which have been chiefly confined to Bredon Hill, have as yet produced only the following fossils: *Ammonita* 1 species; *Terebratula* 5; *Trigonia* 1; *Pecten* 2; *Cidaris* 1; *Pentacrinus* 1; *Terebellaria* 1; *Flustra* 1; *Sarcinula* 1. Nine genera, 14 species.

The next succeeding formation is the Upper Lias Shale. The traces of this formation in our district are so imperfect that in many places its existence is rather to be inferred from analogy than proved from ocular evidence. Nevertheless, as there are some places where it certainly exists, it would be improper to omit this stratum in our list, especially as in the North of England it assumes a very important character, both in a geological and commercial point of view. In this and the adjoining counties, the stratum is vastly reduced in thickness, and there are no inducements for the speculator to penetrate its interior, and hence illustrative sections of it are rarely to be met with. Mr. Lonsdale states that he has met with it in many parts of Gloucestershire, and on his authority I have coloured it in the Society's Map, along the side of Broadway and Ilmingdon Hills, where it may be looked for at about three quarters of the way up. It occupies a similar situation in Bredon Hill, and may be traced round the N. side from the height above Aston-under-Hill to Wooller's Hill, its situation being commonly marked by a grassy slope, below the steep brow caused by the Inferior Oolite, and above the line of the Marlestone quarries. Numerous springs are thrown out along the line of its course, as is always the case where clay interstratifies with more porous strata.

This formation being in this district much concealed by grass and vegetable soil, but few fossils have as yet been found in it, but

if any good sections of it should occur, it may be expected to reward the geologist amply for the trouble of an examination.*

The next stratum in the descending order is the Marlestone. This formation consists of a series of beds of sandstone, marl, and sand, in various degrees of induration. It may be traced along the side of the Broadway Range, at about half the height up; and skirts Bredon Hill in the same manner, where it forms the summit of five or six flat-topped projections, half the height of the main range, and jutting out from it on the N. and E. sides. In Dumbleton Hill, which is of inferior height, it occupies the summit, proving, by the regularity of its occurrence in these hills, that the intervening vallies have been denuded, and that Dumbleton and Bredon Hills are correctly termed outliers.

The Marlestone rarely possesses sufficient solidity of texture to qualify it for a building-stone, but in lieu of better materials it is quarried in many places to repair the roads. The Marlestone of our district seems unquestionably to be the equivalent of the bed of the same name on the Yorkshire coast, which separates the Upper and Lower Lias Shales. In both localities it contains an abundance of fossils, including several species which are common both to Worcestershire and Yorkshire. In this neighbourhood the most numerous and remarkable fossils are, *Belemnites*, *Gryphæa Gigantea*, and *Pecten Æquivalvis*. The following is a list of the fossils hitherto noticed in it, and probably many more might be added on a closer examination of the several quarries where it is exposed.

Ammonita 5 species; *Nautilus* 1; *Belemnita* 1; *Terebra* 1; *Turbo* 1; *Trochus* 1; *Mya* 1; *Lutraria* 1; *Unio* ? 3; *Corbula* ? 1; *Tellina* ? 1; *Astarte* 1; *Cardium* 1; *Modiola* 1; *Pinna* 1; *Avicula* 1; *Plagiostoma* 4; *Pecten* 9; *Ostrea* 1; *Gryphæa* 1; *Terebratula* 8. Twenty-one genera; 45 species.

We now arrive at a formation more important both in thickness and superficial extent than any hitherto described—the Lower Lias Shale, commonly known by the simple name of Lias. This stratum occupies nearly the whole of the Vale of Evesham, and extends from 200 to 300 feet up the sides of Bredon and Broadway Hills. Its total thickness is probably upwards of 500 feet. At Bretforton it has been sunk into more than 300 feet, in quest of coal, without being perforated. This excavation was commenced three years ago by a sanguine speculator, in spite of the warning advice of geologists, and after a great sum expended, is at last given up as hopeless. All scientific geologists know that true coal is only to be found beneath the New Red Sandstone, and that to seek for it in the Lias which is above that formation can only end in disappointment. And such is the enormous thickness of the New Red Sandstone, (as shewn by Mrs. Brown's excavation, which will be noticed hereafter,) that it is scarcely less chimerical to seek for it there, except, indeed, in the very lowest beds of that formation. If by diffusing a knowledge of the general principles of

* An account of this stratum and its organic remains, will be found in Mr. Murchison's excellent little work on the Geology of Cheltenham, just published.

geology, the Worcestershire Natural History Society shall prevent future speculators from sinking their fortunes underground in places where they will never draw them up again, our infant Society will not be without its use.

The Lias Formation consists here, as elsewhere, of a series of black or blue shales, producing, by exposure to the atmosphere, a cold, stiff, clay soil. At the lower part of the formation, thin beds of limestone occur, from 2 to 8 or 10 inches thick, which produce excellent lime, but when used as a building-stone are apt to shiver with the frost. At Binton, near Bidford, and at Haselor, these beds are thin, smooth, and of fine quality, and are used for flooring and other purposes. Experiments, partly successful, have been made to apply the Haselor stone to lithography. It is well adapted for the lithographic *ink*, but is not suited for *crayons*.

The strata we have hitherto described are very regular and conformable in their arrangement with respect to each other, but the Lias presents us with an extensive fault or break in the strata, by which the Red Marl beneath is unexpectedly exposed on the surface. This fault has been traced from near Netherton on the S. to Lower Bentley on the N., a distance of 15 miles, and is distinguished on the map by a narrow strip of Red Marl running towards the S., with Lias on each side. From Netherton to Radford, on the Worcester and Alcester road, this fault is marked by a shallow valley, from half-a-mile to a mile in width, crossing the valley of the Avon, and interrupted near the middle of its length by the Cracombe Hills. Throughout this space the eastern side of the valley is the highest and steepest, the rise on the W. being very gradual. This valley is one of those which geologists term *vallies of elevation*, being a gap, caused by strata separating and sloping off to either side in consequence, as they suppose, of an elevation of the strata beneath. But as the same effect, (as far at least as relates to *level*,) would ensue from the *depression* of two neighbouring districts, as from the *elevation* of some point between them, it would perhaps be better to give to vallies of doubtful origin a name founded, not on theory, but on facts, and to term them *anticlinal vallies*, that is, vallies in which the strata on either side dip away in opposite directions.

The portion of Red Marl exposed by the fault in question, is at first a narrow strip, with a regular width, of about half-a-mile, commencing near Netherton, and passing between Cropthorne and Charlton, whence it spreads out to a mile in width, reaching from Cracombe nearly to Chadbury. The Cracombe Hills cause an interruption to the anticlinal valley, and the Lias, which is continued uninterruptedly along their summit, forms a kind of bridge, connecting the Lias on the two opposite sides of the line of fault. The Red Marl rises about three quarters of the height of these hills, and may be traced dipping beneath the Lias, both on the E. side and the West.

Beyond Cracombe Hill the valley resumes its course as far as Rouse Lench and Radford, with a width of half to three-quarters of a mile. The eastern limit of the Red Marl follows the brow of a

steep bank to Abbot's Lench, and an isolated patch appears in a valley about a mile to the E. of that place. The Lias caps the hill between Rouse Lench and Abbot's Lench, and then turning to the E., appears no more on this side of the line of fault. The western limit of the Red Marl passes near Bishampton and Abberton, and crosses the Alcester Road a short distance W. of Radford.

Up to this point, the break in our strata has been marked by an anticlinal valley, but from hence to Feckenham it assumes the form of a fault properly so called, the Red Marl being raised up, and forming a long range of hill, with the Lias on the W. abutting against it at the base. This is best seen by Section II., taken near Inkberrow. The Lias, as before observed, extends no farther than Rouse Lench on the E. side, but on the W. it continues past Little Inkberrow, Morton-under-Hill, and Feckenham, nearly to Lower Bentley, which is its furthest northern point in Worcestershire. At Feckenham, and near Bentley, the Red Marl is again seen to dip to the westward, and apparently to run under the Lias.

Although the extent of the Lias in this county may be best seen by inspecting the map in the Society's Museum, yet it may be useful to give a general sketch of the line pursued by the junction of the Lias and New Red Sandstone or Red Marl.

About three miles from Alcester, on the road to Stratford, is a hill composed of Lias, with Red Marl at the base; the former stratum extending northward, but to what distance has not yet been ascertained. From this point the lower junction of the Lias extends towards Bidford, and crosses the Avon about a mile E. of that town. It soon afterwards turns westward, and occupies the summit of a steep bank or cliff, with the river at the base, as far as Salford, whence the ridge turns to the southward, and is known by the name of Cleeve Bank. The river still keeps close to the foot of the bank, the sides of which are composed of Red Marl, and the summit of Lias. This continues to near Littleton Ferry, whence the boundary of the two formations is obscurely defined, but appears to pass near Norton, and turning to the N., to follow the eastern foot of the hills on which Atch Lench stands, as far as the Worcester and Alcester road, which it crosses for a short distance; it then sweeps round to the westward and forms the hills above Rouse Lench, before mentioned. Having already described the form assumed by these strata throughout the line of fault, we will resume the line of junction at Lower Bentley, where that description terminated. From near Lower Bentley the Lias passes about one mile S. E. of Hanbury, and thence at the back of Meer Hall to Goose Hill, and on the north of Trench Wood to Crowle, its course being for the most part marked by a low range of hill. At Crowle is a good section of it showing very distinctly its junction with the Red Marl. From Crowle, the line of junction crosses successively the roads to Alcester, Evesham, and Pershore, and then turning due S., passes close to Pirton, and across Croome Park, where it forms a low bank, with the house at the foot and the gardens upon the top. Beyond Croome the Lias runs to the S. for about three miles, and turning to the westward past Ripple, it stretches thence

to Tewkesbury. The nearest point at which the Lias approaches Worcester, is on the Pershore Road, where it reaches within $3\frac{1}{4}$ miles of Worcester Cross.

The Lias of our neighbourhood though not so productive in organic remains as it is in Dorsetshire and Yorkshire, contains, notwithstanding, in some of its beds, considerable abundance and variety. The vast Saurian Reptiles for which Lyme Regis is so famous, though rare, are not wanting in our district. Vertebrae of the *Ichthyosaurus* have occurred at Coltknap Hill, at Abbey Manor, and at Haselor, where also a fine vertebra of the *Plesiosaurus* was found, which has been presented by Mrs. Browne to our Museum. These facts suffice to render it highly probable that good specimens of these magnificent reptiles may occur in our neighbourhood, and lead me to hope that the interest excited by our Society in the cause of geology may be the means of saving many valuable fossil specimens from the ruthless hammer of the quarryman.

The most conspicuous fossils of our Lias are the *Plagiostoma Giganteum*, and an oval bivalve, apparently the *Unio Hybridus* of Sowerby, (Min. Con. pl. 154,) but belonging to a new and undescribed genus, which last is very common in some of the lower beds of the Lias. Besides these the *Gryphæa Incurva*, the never-failing attendant of the Lias in nearly all countries, is in some parts of our district very abundant. The following is a list of the genera I have hitherto noticed.

Ichthyosaurus 1 species; *Plesiosaurus* 1; *Ammonita* 7; *Nautilus* 1; *Belemnita* 1; *Trochus* 1; *Turritella* 3; *Orbicula* 1; *Venus* 1; *Astarte* 1; *Lucina* 1; *Unio*? 2; *Pinna* 1; *Avicula* 2; *Arca* 1; *Nucula* 1; *Ostrea* 1; *Gryphæa* 2; *Pecten* 1; *Plagiostoma* 2; *Modiola* 2; *Terebratula* 1; *Serpula* 1; *Cidaris* 1; *Pentacrinus* 1. Twenty-six genera, 38 species.

Before dismissing the Lias formation I ought to mention certain substances, which in some parts of it, are not unfrequent. These are hard masses of stone in the form of a cylinder, or truncated cone, from one to four inches in diameter, and about the same in length. Their surface is rough and uneven, with sometimes faint irregular ridges in a circular direction. When broken, they appear composed of a hard marble-like stone, containing fragments of shells. These bodies appear to be the nuclei of nodular concretions, such as are common in many formations, the softer parts of which have been decomposed.

The lowest stratum which occurs in the Vale of Evesham, is the New Red Sandstone of geologists. This formation which composes the greatest part of Worcestershire is seen to dip under the Lias, whose escarpment generally forms a low range of hill along the northern and western borders of the district which it occupies. The New Red Sandstone formation possesses great uniformity of character throughout England, and in our district is not marked by any peculiarities. The uppermost beds consist here, as elsewhere, of a red friable marl, producing a rich strong soil. The highest bed of all, next to the Lias, is commonly of a whitish or grey colour, but in texture much resembling the Red Marl beneath; it

is seldom schistose like the lias, but breaks into fragments in all directions. Wherever circumstances admit of a close examination of the union of this formation with the last, the transition appears quite sudden and well defined, but without any marks of violent action. The New Red Sandstone is quite conformable with the lias, and in the case of the fault before described, the disturbing force has affected both formations alike.

The upper part of the New Red Sandstone in Britain has in no instance, I believe, supplied the geologist with fossils, and its list of mineral contents is very scanty. The only mineral contained in the Red Marl of this district is gypsum, which occurs sparingly near Cracombe and at Hasler, but is rare, I believe, in other parts of the county. Of the salt which at Droitwich and Stoke Prior forms a never failing source of prosperity, no traces exist in these upper strata.

At Inkberrow, the extensive fault before mentioned brings to the surface the sandstone beds, which in most parts of England underlie the Red Marl. These beds are there quarried for a variety of uses. Their position with respect to the Lias is seen in Section II.

The vast thickness of the New Red Sandstone formation is proved by the shaft sunk in 1804, by Mrs. Brown, of Hasler, in quest of coal. The following is the best account of the strata that can now be procured, and geologists may regret that a more exact account was not kept of so deep and interesting an excavation.

	Feet, Inches.		
Lias beds, about.....	75	0	(At 51 feet, a strong spring.)
Red marl, about.....	282	0	
Gypsum.....	1	0	
Grey and red strata	47	0	
Black strata.....	15	0	
Red and white beds with gypsum.	387	9	(At 582 feet, a thin vein of coal.)
Total.....	807	9	

Having now traced the strata of the Vale of Evesham in succession, as far as that district is considered to extend, the investigation of the rest of the county is left to others. It only remains to give, by way of an appendix, a sketch of what are commonly called *diluvial* deposits, as far as these occur in our district.

The deposits of gravel, sand, and clay, which in most parts of the world lie in irregular patches upon older rocks, have been by many geologists referred to the Mosaic deluge. But recent observations seem to shew that these deposits have not all been simultaneous, and that granting some of them to originate in the Mosaic deluge, others have been caused by irruptions antecedent to that period. Be this as it may, there is nothing, I think, in our district to prove that the diluvial beds, which are there very abundant, are not the result of the Mosaic deluge alone.

These deposits consist of clay, gravel, and sand, in various proportions, and scattered over the country with capricious irregularity. Where the sand predominates, it is often of great service in lightening and fertilizing the otherwise clayey soil. The clay is in many places dug for brickmaking, and the gravel is a valuable material for the roads. The latter is composed of a variety of broken rocks, for the most part of older formation than those of this district, but chalk flints are not unfrequent, and the *Echinocorys Scutatus*, and *Spatangus cor-anguinum*, two well known chalk fossils, have been met with. In the neighbourhood of the Lias, the diluvial beds often contain rolled fragments of the fossils of that formation, such as *Gryphæa incurva*, *Ammonites*, &c. At the village of Bredon, the *Hippopodium Ponderosum* occurs in the gravel in addition to the above fossils. Near the oolite hills the diluvial beds contain, as might be expected, fragments of oolite.

Besides borrowed fossils, the diluvial beds occasionally contain fossil remains peculiar to themselves, consisting of the bones of land animals, which appear to have been living in this country at the time of the catastrophe which caused the deposits in which they are now imbedded. This Society possesses several bones of the hippopotamus, ox, and deer, found at Crophorne.* In a gravel pit at Chadbury, bones of the rhinoceros have been found; also, a fine molar tooth of that animal, which has been presented to this Society by W. Perrot, Esq. of Fladbury. Fossil bones of some large animal have also been found in Mr. Day's claypit at Bengworth, and the Society is indebted to Mr. Stokes, the Surveyor of the Roads, for a fine tooth of the elephant from Stratford-on-Avon.†

Thus, then, there is ample evidence of the existence, in our diluvial deposits, of these interesting remains, which carry us back to a period, and, geologically speaking, not a distant one, when the hippopotamus, rhinoceros, and elephant roamed, undisturbed, in the vallies of Worcestershire; and hence I beg to recommend to the attention of the Society the numerous pits of gravel, sand, and clay, which abound in the county, not doubting that many valuable relics may thus be rescued from the workmen, who, unless taught otherwise, will still continue to throw them aside as worthless and unprofitable.

It is now time to close these imperfect remarks, which may suffice to shew that this county contains much that is interesting to the geologist, by whom Worcestershire has hitherto

* The excavations at Crophorne have been lately resumed, and have brought to light a considerable number of bones, accompanied by many species of land and fresh water shells, the same as now exist in the neighbourhood. An account of this discovery was read to the Society on Nov. 25, 1834.

† Since the reading of this paper, the Museum has been enriched by two molar teeth of the rhinoceros, from Sandlin, near Malvern, and the tooth of an elephant from Powick.

been much neglected, but we may hope that, under the auspices of the Natural History Society, it will receive a thorough investigation, and that the treasures it contains will be added to the commonwealth of Science.

P. S. With a view to illustrate the order and position of the several formations above described, an imaginary section, No. III. is introduced, commencing at Severn Stoke, and intersecting Bredon and Dumbleton hills, till it meets the Broadway or Cotteswold range.

H. E. STRICKLAND.

THE SWITCH, OR MAID OF KENDAL.

BY WILLIAM CAREY.

THE Muses' green retreat beneath,
From busy themes, awhile, I breathe;
No more the plastic arts rehearse;
Dear, lovely Woman claims my verse.

Ye Maids, who beauty justly prize,
And, in the mirror, turn your eyes,
To triumph in the vermeil glow,
That Love and Hope on Youth bestow;
To practise o'er *to-morrow's* wiles,
Of radiant looks and tender smiles;
To teach the ringlets where to play,
That o'er the lovely forehead stray,
The braid coronal proudly deck;
Or lightly shade the snowy neck;
The rising bosom—but beware,
My Muse!—nor let description dare,
With bold, unhallow'd thought, to rove,
Beneath the mystic veil of Love.

Ye Fair—my serious tale attend,
And own the Poet for your friend;
What though you pride in show and dressing,
A husband's a substantial blessing.

Near *Kendal*, in a neat abode,
Sequester'd from the dusty road,
With lands, which brought an income clear
Of just six hundred pounds a-year,
There liv'd—I don't exactly know,
Nor is it fix'd—how long ago—

A widow, who, at sixty, found
Old envious Time, with steady pace,
Upon her footsteps gaining ground
And pushing fast to win the race.

Her tresses fell; she knew not how
"It could befall *so young* a woman"—

And wrinkles lin'd her pallid brow,
Which "*at her years, were more uncommon.*"—
Her sight grew dim; from day to day,
She felt her appetite decay;
A growing tremor shook her head;
Refreshing sleep her pillow fled;

A whizzing deafness stopp'd her ears ;
 Yet, still, she struggled with her fears :
 But, when a palsy seiz'd her tongue,
 A weight upon her spirits hung,
 For she was sure that fatal sign
 Foretold a woman's last decline.

Fearing to leave alone her daughter,
 To wed, she earnestly besought her.

Blithe as the Thristle on the spray,
 And lovely as the fragrant flow'r,
 That blooms upon the lap of May,
 Refresh'd by genial sun and show'r,
 Fair Dora, though, in all things, still
 Obedient to her mother's will,
 When Fame's loud trump her beauty sounded,
 And Suitors in her train abounded,
 No witchcraft needed to discover,
 Or fancy, failings in each lover.

Instructed in Lavater's school,
 To love, or hate, by settled rule,
 The Maiden boasted of her skill,

By signs and tokens, to foretell
 What youth would play the bridegroom ill,
 Or act, for life, the husband well.
 Her system taught her to detect
 Hypocrisy in every sect,
 And in the fleeting gestures, find
 Each latent feature of the mind.

By form of eye-brow, lip and chin,
 She prov'd the owner void of grace,
 And pried into each secret sin,
 By dint of his *immoral face*.

Red hair a cruel soul betray'd,
 And tyrants mortally she hated ;
 A flaxen hue a knave betray'd,
 And with a knave she ne'er debated ;
 A thrifty suitor woo'd her pelf ;
 (Yet was she not averse to saving ;)

The handsome only lov'd—himself,
 Although of flames and Cupids raving ;
 The vice of play, in this, she fear'd ;
 Too light and fickle that appear'd ;
 This short in person ; that too tall ;
 An *income*, or a *nose* too small ;

In these, or crimes like these, detected,
 One Lover fast pursu'd another,

And each, in turn, with scorn rejected,
 In sorrow found a luckless brother.

The Matron, an experienc'd Dame,
 Who knew the world and all its chances,

Would seriously her Daughter blame,
 And preach against her "*silly fancies*."

She quaver'd, oft, the ancient saying,
 "There's danger in a *maid's delaying*."

"A bird above us, in the bush,

"Is dearly purchas'd at a rush ;

"One caught—good sportsmen understand,

"Is worth an hundred out of hand."

"Dorinda dear,"—one day, she said,—

"A whimsy flutters in my brain ;

"Haste to the hedge in yonder mead,—

"I long, and must not long in vain—

"The STRAIGHTEST SWITCH I'd have you choose;
 "And all your maiden wisdom use;
 "The issue will my thought explain;—
 "Waste not your time in hesitation;
 "For much it will my heart rejoice,
 "If acting with discrimination,
 "You make a quick and cunning choice.
 "The search at yonder elm commence,
 "Pray Heaven you may approve your sense!
 "For, mark me, when you once refuse,
 "And pass a growing sapling by,
 "You *must* NOT TURN AGAIN TO CHOOSE,
 "But, *further on*, your fortune try."
 The Maid replied:—"By yonder stile,
 "I'll haste—and stay so short a while,
 "You may fill out my tea to cool.—
 "Thank Heav'n! I'm not so very blind,
 "Nor—dear Mamma—so great a fool,
 "But what you want I'll quickly find."—
 Then breathing sweets—with spirits gay,
 Light o'er the turf, she tripp'd away;
 Soon pass'd the stile—the elm beside,
 A TALL STRAIGHT SWITCH, *at once*, she spied.
 She stretch'd her hand—but hesitating—
 Though settled not to loiter long,
 And inwardly deliberating,—
 "To choose so quickly might be wrong.—
 "Mamma was good—her stay might fret her,
 "But *further on* she saw a *better*."
 To that she flew—but found, when near,
 It did not quite so straight appear.
 One *further still*, she saw, and then,
 She found herself deceiv'd again.
 'Twas odd, but, *with more crooked bent*,
 They grew, *the further on she went*.
 At every step, now more perplex'd,
 She oft look'd back, asham'd, and vex't;
 Through apprehension of the worst,
 Regretting that she left the first;
 And *choosing none*, when *all were pass'd*,
 Return'd WITHOUT A SWITCH, AT LAST.
 Ye maids, alas! *her tea was cold*;
 For dear Mamma the cup had fill'd;—
 The prudent lady still could scold,
 And was in many points self-will'd:
 But, having fully gain'd her view,
 This moral from her failure drew:
 "There is a tide—I hate delays,—
 "In man's affairs—as Milton* says—
 "He might have said in woman's too—
 "And, if he had, 'twere full as true—
 "That should be taken at the flood,
 "Or neither ever come to good.
 "Dear Dora, as you could not find,
 "In yon, a switch to please your mind,
 "I greatly fear your curious eye
 "Will pass the crowd of lovers by.
 "Remember, youth not long will tarry;
 "And years bring on most woful changes;—

* Milton for Shakspeare, a proof that the good Lady's memory had partaken in the decay of her other powers.

"How often do our hopes miscarry;—

"From Fair to Fair the fancy ranges—

"The Toast to-day, despis'd to-morrow,

"Discovers, to her endless sorrow,

"A maid, too late, may wish to marry.

"You, too, may for a husband sigh,

"And feel, too late, the tender passion,

"When men, with scorn, will pass you by,

"And younger beauties rule the fashion."

She ceas'd.—The Maid, with frowns, replied.

The wise old Dame, soon after, died.

Dorinda, long the envi'd Fair,

Fresh Lovers still her hand pursuing,

Saw years roll on devoid of care,

'Till eas'd from all the plague of wooing.

Ah! who is safe from Fortune's frown?

Alike, the Scholar and the Clown,

The Brave, the Fair, the Rich and Great,

Must, in their turn, submit to Fate.

A law-suit par'd her income down,

And clatter went the tongue of Scandal;

Her loss was magnified through town,

And few deplor'd her luck, in Kendal.

But, though of half her lands bereft,

She had enough for comfort left;

And, graver grown, when somewhat mellow,

She vow'd to please some charming fellow.

At *forty*, rather in a haste,

Resolv'd no more her *youth* to waste:

The tender frolic seiz'd her head,

Like other blushing girls, to wed;

But strange, alas! no lover offer'd,

Where crowds, so oft, their vows had proffer'd.

The years roll'd on.—The luckless Maid

Felt all the pangs of hope delay'd,

The Gossips whisper'd that she swore

(But surely 'twas *upon her honour*,)

To trust *Lavater's* rules no more,

Which had drawn down such sorrow on her.

Paints, patches, powders, cosmetics,

She vainly tried her charms to fix;

Call'd ev'ry fashion to her aid,

And every rage of mode display'd;

But Art with Nature strove in vain;

Through all disguise the wreck was plain.

Time stole her bloom, and in despair,

She saw him thin her changing hair.

Her cats and lapdogs multiplied.

Her Monkey chatter'd at her side.

But, fretful, pale and discontented,

She bitterly the past repented;

At balls and routs appear'd no more;

Neglected dress, and cards gave o'er;

Dropp'd rouge and fard, and took to snuff,

Nay, Malice said to "*stronger stuff*:"

A private cure for spleen and vapours,

Though never yet made up in papers,

'Twas lock'd so closely in her closet

That none but Nelly knew what was it.

But Nelly, in right buxom health,

Had tri'd the elixir by stealth:

Though never taught to know a letter,
 No Solomon e'er reason'd better.
 "That which could malady expel
 "Could bar its entrance full as well."
 With her "*prevention* was the sure
 "And pleasant mode of ready cure."
 But, though as any hand-vice close,
 Her tongue was loosen'd by the dose;
 And, while it work'd, the maudlin jade,
 To one the recipe betray'd,
 That one, in secresy, to ten,
 And each to twenty more, again,
 All having gravely pledg'd their souls
 To be as mute as sleeping moles.
 But Nelly, having slept a night,
 Awoke and started in affright;
 Her head still ached, though clear of fume,
 And, gazing wildly round her room,
 Recall'd to mind her ev'ning chatter,
 And weigh'd it as "no laughing matter;"
 She saw before her, in the morning,
 A sure dismissal without warning,
 And, dressing quickly, glided down,
 Just as good folks were up in town;
 With proffer'd oath the whole deni'd,
 And prov'd her mistress was beli'd.
 She swore the cordial was not *****,
 But Glauber salts and sugar candy:
 And who could doubt her, when she said
 A glass or two had turn'd her head,
 And made her tell a silly youth
 A tale without a word of truth?
 Thus Dora was from slander freed,
 And all her knowing friends agreed
 To vote, without a non-content,
 Her elixir quite innocent.
 Though Rumour, prone to base invention,
 In whispers, scrupled not to mention,
 That, on one *very nervous* night,
 She smash'd her mirror, in despite.
 Alas! poor Nelly's loud denial,
 To Dora, prov'd a sharper trial;
 All slanders largely gain in telling,
 From mouth to mouth, like torrents, swelling;
 Her secret reach'd the Market Cross,
 We may be sure, without a loss:
 And 'twould have vex'd a Tristram Shandy
 To hear the shout "It is not *****!"
 Where'er she went, with laughter rude,
 The odious cry her steps pursu'd;
 And shock'd her eyes, in vulgar scrawls,
 Chalk'd high upon the doors and walls.
 Nay more, 'tis said, though greatly doubted,
 And by some learned Trav'lers scouted,
 That, to this blessed day, in Kendal,
 When any stagge'ring, tipsy Spend-all,
 Top-heavy, reeling to and fro,
 And balancing 'twixt heel and toe,
 To 'scape a headlong tumble, halts,
 They say "*He's had his Glauber salts.*"
 But "the unkindest cut of all,"
 The sting that drove her to the wall,

A frequent shaft discharg'd in jest,
 That robb'd her lonesome nights of rest,
 Was, when some rosy girl pass'd by,
 With ruby lip and sparkling eye;
 Light airy step; an Hebe grace,
 And laughing mischief in her face;
 Her bosom fair, and ripen'd form,
 With love, and youth, and beauty warm;
 Her finger rais'd, in whispering jeer,
 Just loud enough for Dora's ear,
 With mimic show of pity, said
 "Heav'n help her soul! the poor old maid."

That hateful epithet to shun,
 Ah, whither would not Dora run!
 Recalling what herself had been,
 The toast of Kendal at eighteen:
 "As young and lovely, once, was I,
 "As fresh my bloom, as bright my eye,
 "As gay my heart; my head as vain;
 "Of Maiden aunts with what disdain
 "I thought, and spoke, and laugh'd and fear'd
 "And, with the giddy sneerers, sneer'd!
 "Now, cruel fate!—go where I will,
 "Some taunt or gibe o'ertakes me, still.
 "And to increase my heavy grief,
 "The evil is past all relief."

But, here, I feel a touch of shame,
 And hesitate, in odd confusion,
 Though in my conscience void of blame,
 For poor Dorinda's strange conclusion.

Most gladly I my tale would stop,
 But something worse might be suspected,
 And Scandal a vile whisper drop
 Of some conceal'd intrigue detected;
 What can I do? How make an end?

My case is certainly a hard one!
 Your pity, Ladies dear, extend,
 And seal your luckless Poet's pardon.
 I know (by Cupid's bow I swear)

On earth no greater grief or terror
 Than the displeasure of the Fair,
 Although incurr'd by blameless error.

Strip me of ev'ry other joy,
 And steep me to the lips in trouble;

Let Malice all her arts employ
 My pains and crosses to redouble.

All—all I'll welcome!—all endure!

Like some bold volunteer on duty;

And find for ev'ry ill a cure,

If favour'd with the smile of Beauty.

O spare me, then, those looks so cold!

You cannot say 'twas I that did it,

The honest truth must now be told,

Though the Lord Chancellor forbid it.—

Then list! oh list! while I relate

The sequel of the Maiden's fate.

How, weary of a single life,

With Puss and Monkey long at strife,

Dorinda threw reserve aside,

And of her precious moments thrifty,

To FOOTMAN JOHN became a bride,

Fast verging on the bloom of fifty.

Take, then, sweet Girls, a Friend's advice,
 Who always sung his best to please you,
 Be not too vain, nor idly nice;
 Nor let Dorinda's whimsies teize you.
 Think, sadly think—when youth has pass'd,
 In heartless dressing and flirtation,
 What wilful maids endure, at last,
 In loneliness and tribulation.
 Neglect not in your rosy prime
 To make your hay in sunny weather;
 And *choose a proper switch in time*,
 When Love and Beauty dance together.*

July, 1793.

* The time of representation, in this tale, is about the middle of George the 2nd's reign. The manners even of the better orders, such as they are painted in authentic contemporary records, and by our best novelists and dramatic writers, were then, in many particulars, still tainted with the prejudices and coarseness of the preceding century. This failure in courtesy was evinced in a degree of coldness, neglect, and derisive behaviour to unmarried ladies of a certain age. Fortunately this rudeness, so disgraceful to that period, has almost wholly disappeared before the advance of good feeling and true politeness. Females, who, from circumstances over which they have no control, or from inclination, a love of retirement and quiet independence; a timid disposition; or a religious sentiment, live in a single state, form an estimable portion of the community in the United Kingdom. In this class there are numbers distinguished for talents, elegant accomplishments, a cheerful good temper, and the exemplary practice of the Christian virtues. It is not necessary to cite names from a past age. It is enough to mention, in our own time, Miss Edgeworth, Miss Anna Maria Porter, and the late Hannah More. Many unmarried ladies, from their having few household cares to occupy them, become an ornament and a blessing to society; of almost every public institution for the improvement, or advantage of the poor, or for general purposes of charity and piety, they are active and liberal supporters. There are, also, many, on whom nature has bestowed tender domestic affections, and every qualification to render a matrimonial union happy, who are deterred from changing their condition by the too frequent instances of most obsequious and fervent adorers before the bridal ceremony, who, shortly after, are transformed into domestic tyrants and libertine husbands. Others live single from a conscientious dread of having a young family, without adequate means for their suitable education and establishment. To these prudent and virtuous motives for celibacy, more, as just and laudable, might be added.

The preceding remarks prove the satiric touches, in the tale, are aimed at an injurious practice, not at any particular individual. "The Switch" was not written to abet a senseless, vulgar prejudice, or cast a ridicule on any class. The author intended, as a sincere friend, to show those very young ladies, who, with good hearts, without any ill intention, are not sufficiently considerate, through a want of experience, thoughtlessness, or a levity of temper, the folly of wasting the flower of their years in coquetry, flirtation, and the rejection of good offers, contrary to the affectionate advice of their parents and friends. A discreditable marriage, at the age of a grandame, with every chance of unhappiness, is no uncommon result of these early errors. He has, always, looked upon the natural endowments and social qualities of the Fair Sex with esteem and admiration. Woman was the "last and best gift" of the Almighty, and she may be fairly valued as the golden link between man and his Creator. Man comparatively boasts of his virtues. Woman practices hers, unobtrusively, without profession. In the breast of a true wife and mother, there are inexhaustible treasures of purity, resignation, fortitude, and disinterested affection, which family misfortunes only call into action with more force and splendour. It is then seen that her attachment is devoid of selfishness. When the world falls away from her partner, her tenderness increases; and she redoubles her kind offices. Her voice is that of a consoling angel to his drooping spirit; her presence as a beam of light from heaven to guide his steps in the dark night of adversity. The heroism of Warriors is rarely free from some alloy of personal acquisition, aggrandisement, or false glory. But history furnishes abundance of examples, which show that the heroism of woman, whether called forth by the love of country, or by conjugal or maternal love, is a sublime emotion, which, at once, elevates her above the weakness that "flesh is heir to." In such instances, when her consort or little ones are in danger, she loses all thought of her own safety, and faces the dens of wild beasts, the sword of violence, the rage of fire and flood, all extremities of peril, even instant death itself, in their defence.

The admirable influence of woman on the manners and morals of nations, cannot be too highly appreciated. The more she is honored and esteemed, the higher is man raised in intellectual dignity and public and private virtue. On the contrary, in the most inclement regions of the habitable globe, where man is sunk into the lowest barbarism of the savage state, one leading characteristic of his brutal degradation is his contemptuous and cruel treatment of woman. In all the wild tribes, however, they may differ in other revolting and ferocious habits and customs, there is found a disgusting agreement in their debasement of the women into servile drudges, driven, like beasts of burden, by threats

AN OUTLINE OF THE BRITISH MUSTELADÆ.

BY SHIRLEY PALMER, M. D.

THE genus *Mustela*, of Linnæus, comprehending the Otters, the Martens, and Weasels, has, by modern zoological writers, been converted into a family, under the title of MUSTELADÆ. From this, the *Lutra*, or Otter genus, which exhibits very wide differences of structure and economy, has been very properly excluded. The family, therefore, as now constituted, includes only two British genera, *Mustela* and *Martes*. Of the five British species belonging to these genera, I propose to trace such an outline, as may direct, and stimulate to further investigation, the student in zoology. To the specific descriptions will be appended such notices of the haunts and habits of the respective animals, as I may be enabled to supply from personal observation and experience. The best and most accessible sources of literary and iconographical* information will also be duly cited.

The distinguishing characters of the *Musteladæ* are: *Body* long, about the thickness of the head. *Legs* short: toes five, sepa-

and blows, and inured to the severest labour, hardships, and privations. Shakspeare conveyed his exalted opinion of the sex in the following sentence—

“When the women of Rome were chaste, the men were heroes.”

The sentiment shows he was fully sensible of the reciprocal moral influence, which the sexes exercise on each other; and that the noble example of woman moulds the highest character of man. After the swarm of barbarians had subverted the Roman empire, the worse than Egyptian darkness, which overspread the intellectual world for centuries, was gradually dispelled by this reciprocal influence. The first light of civilization, which slowly followed this long barbarism, dawned from the eyes of Beauty. The spirit of chivalry imbibed, from the pure mind of this fair and lovely Being, an abhorrence of the violence, plunder, and bloodshed, which, every where, rendered life and property insecure. Under this slow and happy melioration, the elements of social harmony gradually reappeared. The orders of Knight Errantry were instituted, in consequence of the preceding change, and the Troubadours kept alive the generous enthusiasm. The songs of love and heroism fired the youth of the time, with a high sense of valour, justice, and moral virtue. To woman, then, we owe the softened manners and romantic character of the middle ages. To her influence, also, we may justly add, we are very largely indebted for the high state of our present refined civilization. This is not the language of a young enthusiast, but of one, who, having lived nearly three quarters of a century, read the world as a library and human nature as a book, derived the brightest sunshine of life from one inestimable woman, his lamented “better half;” and may be considered to speak the honest conviction of no very limited experience.

* This is a new and most convenient term introduced into science, from the Greek, by French writers. I, therefore, transcribe from the manuscript of my “Dictionary of Terms” now in progress of publication, and of which honourable mention has already been made in “THE ANALYST,” the article illustrative of its etymology and meaning:—

“ICONOGRAPHIE, s. f.,—εικονογραφία (εικονογραφειν, to represent by pictures),—iconographia, f. L.,—bilderbeschreibung, F. G.,—iconography: the art of representing objects by pictures, or engravings. ICONOGRAPHIQUE, adj.,—εικονογραφος, —iconographicus,—bilderbeschreibend,—iconographic, iconographical: pertaining to *Iconography*. See the exquisite *Iconographie du Règne Animal*, of Baron Cuvier, by Guérin, of Paris.”

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rate, on each foot. *Teeth*, six incisor above, erect, acute, distinct; six, below, more obtuse and thickly set: one bruising grinder, termed *tuberculeuse*, by Cuvier, in the upper jaw. Short intestines: no cæcum. They are arranged, by Blumenbach,* in the Class, *Mammalia*, Order, *Digitata*, Sub-order, *Feræ*; by Cuvier,† in the *Mammifères*, *Carnassiers*, *Carnivores*, and, as *treading* only on the extremities of the *toes*, in the tribe of the *Digitigrades*.

Of the two British genera which this family comprehends, the *Mustela*, or Weasel genus is characterized by the presence of two false or tearing grinders in the upper,—and three in the lower jaw: the carnivorous tooth,—*carnassière*, Cuv.—below, has no internal tubercle. Muzzle comparatively short and thick: tongue rough. Odour fetid, especially when the animal is irritated. The genus contains three British species:‡

1. *Putorius*,—Fitchet or pole-cat,—le Putoir of the *French*,—Puzzola, of the *Italian*,—Putoro, of the *Spanish*, and der Ilk, Iltis, Stänkerratz, of the *German* writers. *Specific characters*: colour yellowish-black; mouth and tips of the ears paler. Length of body seventeen inches;—of the tail, which is uniform in colour, six inches. Brings forth six young at a time; and, in its burrowing habits, resembles the otter.

Remarks.—This agile, sanguinary, and destructive animal was very common, in my younger years, in the country around Coleshill; and committed great depredations in the poultry-yards and rabbit-warrens there. For the last twenty-four years, I have never met with a living specimen in the state of freedom. Reports of its capture or destruction at Hopwas-wood, in the vicinity of Tamworth, however, occasionally reach me. The ferret,—le Furet, F.,—Furetto, It.,—der Frettel, G.,—described by some naturalists as a distinct species, under the title of *Mustela furo*, constitutes, I believe, only an albino variety of the *Putorius*. It was originally introduced into this island, from Africa;§ and breeds freely with the dark-coloured original. Its employment in the destruction of rats is well-known. When a boy, I have witnessed severe and long-protracted contests between individuals of the two species. The battle, however, invariably terminated in the destruction of the rat by its nimble and wily antagonist.

2. *Erminea*,—Ermine or Stoat,—l'Hermine, F.,—Ermellino, It.,—Armino, Sp.,—das Hermelin, das grosse Wiesel, G. *Spec. Char.* Colour yellowish-brown above; yellowish-white, beneath

* See Blumenbach's *Manual of Natural History*—page 52—translated from the German, by Mr. Gore, of Bath. A very useful work.

† See Cuvier's celebrated *Règne Animal*. Vol. i. p. 142. *Second edition*.

‡ See Pennant's *British Zoology* (8vo. edition of 1812), vol. i. p. 105, plates vi. and vii.; the *Zoologist's Text-book*, by Capt. Brown, vol. i. p. 70, vol. ii. pl. x.; and Palmer's *Lectures on the Vertebrated Animals of the British Islands*, p. 28.

§ Και γαλας αγριος ας η λευκη φειρι. *Strabo*, Liber lli.

—changing to white in the winter of northern regions:—tip of the tail, which is bushy, invariably black. Length of body ten inches,—of tail, five or six. Number of young not exactly known. Much more common than the preceding species.

Remarks.—The stoat subsists principally upon eggs, poultry and other descriptions of bird, rats, and putrid animal substances. It has been known to track a young hare by the scent with all the accuracy of the harrier.* The extent of its depredations in the rabbit-warren will be shewn by the following fact. One morning, in the early spring of 1832, while sitting at breakfast, at Packwood House, the residence of the late Col. Fetherston, I observed a large and apparently female stoat, rapidly vaulting, with arched back and bushy tail, through the tall herbage at the head of the pool which terminates the lawn. She carried something in her mouth, which I soon discovered to be a young rabbit. After having disappeared for a few minutes and deposited her burthen, the stoat retraced her steps with increased agility across the lawn; descended a steep bank into the neighbouring meadow, and plunged into a rabbit-burrow at the foot of an old oak which grew there. From this, she soon returned with another of the defenceless inmates in her mouth. Four times did the little animal renew her visit to the meadow with the same result. Thinking it high time, for the sake of his rabbits, to stop these predatory incursions, one of the members of the family now took up his gun, and stationed himself behind the oak, but the prey was gone; and the sagacious creature returned no more to the scene of her depredations. All our endeavours to discover the hiding-place of the stoat, with a view of obtaining possession, or at least ascertaining the number, of the young, for which she had, doubtless, been thus adventurously and actively catering, were unsuccessful.

3. *Vulgaris*,—Common Weasel,—la Belette, F.,—Donnola, It.,—Comadreja, Sp.,—das gemeine Wiesel, G. *Spec. Char.* Colour yellowish or tawny-brown, above; white or yellowish-white, beneath. A brown spot near the angle of the mouth. Length of body six or seven inches;—of the tail, which is neither bushy nor tipped with black, two inches. Number of young, five or six. Its skin and excrements exhale an intolerable odour.

Remarks.—This animal, by far the smallest of the British weasels, and frequently named by ignorant observers, the *stoat*, subsists on the same food as the preceding species. It is very active, and uncommonly courageous for its size. I have frequently experienced great difficulty in driving the little creature from any article of prey, of which it has been my object to obtain possession. A few weeks ago, a professional gentleman, of Tamworth, in the vicinity of which the weasel is very common, observed an animal, of this species, crossing the road before him,

* See Fleming's *History of British Animals*, vol. i. p. 14.

and dragging along, with incredible rapidity, a remarkably fine specimen of the water-rat, *Arvicola aquatica*, which the weasel had apparently just destroyed. My friend dismounted from his horse to secure the prize. But so reluctant was the weasel to abandon its prey, that it repeatedly turned round on the successful competitor; shewed its teeth and chattered; and was only, at last, put to flight by repeated blows with his hand-whip. It is said sometimes to assume a white colour in winter; and, in this state, probably constitutes the *M. nivalis*, of Linnæus.

The *Martes*, or Marten genus, exhibits the same internal organization as the *Mustela*; but is distinguished from it, principally, by the following external characters: three false grinders in the upper and four in the lower jaw: carnivorous tooth, below, furnished with an internal tubercle. Muzzle more elongated and slender than in the weasel. Tongue smooth. Odour musky. Of this genus, there are two British species; the distinguishing characters of which, however, are very obscure and ill-defined.

1. *Fagorum* (*M. martes*, of Linnæus, and *M. foina*, of Blumenbach),—Common Marten,—la Fouine, F.,—Faina, It.,—Fuina, Sp.,—der Hausmarder, Steinmarder, G. *Spec. Char.* Colour dark-brown, with a reddish tinge on the head: *breast and throat white*. Length of body eighteen inches;—tail, from ten to twelve. Number of young from four to six.

Remarks.—This, the most elegant and beautiful of all the British *Mammifera*; preys upon poultry, game, and the smaller quadrupeds. It inhabits woods; forms its lodge in the *hollow* of trees; frequents the vicinity of the habitations of man; and is readily tamed. Formerly of common occurrence, it is now rarely seen in the midland districts of the island. About four years since, a fine specimen was killed in Hopwas-wood, near Tamworth; and is preserved in the collection of the Right Hon. Sir Robert Peel, at Drayton Manor, to whom a portion of that beautiful wood belongs.

2. *Abietum* (*M. martes*, of Blumenbach),—Pine Marten,—la Martre, F.,—Martora, It.,—Marta, Sp.,—der Baum-marder, Edel-marder, Feld-marder, G. *Spec. Char.* *Throat and breast yellow*. Size less, and fur finer, than that of the preceding species. Number of young, seven or eight.

Remarks.—By many naturalists, this species is considered as a mere variety of the common marten. In such opinion, I do not concur. The pine-marten is distinguished from its congener, by its smaller size; by the finer texture, and deeper hue, of its fur; and, more especially, by the yellow colour of the throat and breast. It is, also, a much more shy animal, and in England, at least, far less frequently seen, than the common marten. It very rarely approaches the dwellings of man; and brings forth its young in the *tops*, not in the *hollow*, of trees. A fine specimen, said to have been killed in Gloucestershire, was, about four years ago, brought to me for inspection. It closely corresponded, in

all its characters, with the description given above. The whole appearance, and especially the condition of the teeth, bespoke that it was a *young* animal. Consequently, the yellow colour of the throat, in this instance, could not have been,—as the advocates for the identity of the two species confidently assert that it is,—the effect of advanced age. Still, it must be acknowledged, the distinctive characters of these two of the most interesting of British digitigrade animals, are, by no means, at present clearly or satisfactorily established. I feel great anxiety to acquire some more correct and precise information than we hitherto possess, on this subject.

Birmingham, December, 1834.

I have omitted to cite, among other valuable works for reference on the present subject, the first volume of Dr. Turton's *General System of Nature*. The following is a nearly literary translation from the second volume (page 340) of the *Elémens des Sciences Naturelles*, by Duméril,—a publication very little known in this country, but containing much information, of great utility to the student in Natural History:—"Species of the *Mustela* genus are found on both continents. They subsist principally upon eggs, and the blood and brains of small animals strangled by them. They are divided into three sub-genera: the *Otters* (les Loutres) which have the posterior toes palmated; the legs short; the tail broad at the base; the muzzle rounded; and the head flat. They swim and dive with great facility; feed upon fishes; and their fur is very valuable. The *Weasels* (les Belettes) have separate toes; short claws; the body and neck elongated; and back arched. There are many species of this genus, as the common weasel, ferret, pole-cat, marten, pine-marten, sable, and stoat. The skins of the (three) latter are principally in request. The *Skunks* (les Mouffettes) have long claws; the body much broader posteriorly than anteriorly; the tail very hairy. They give out a most unpleasant odour. They inhabit America."

SONNET ON THE NORTH HILL, MALVERN.

LET him a murmurer at this "world of woe,"
 Thy rugged steep, majestic hill, ascend;
 And let him gaze on those fair vales below,
 Where Nature's charms in boundless space extend;
 Where all in countless numbers ranged around,
 Heaven's noblest blessings open to the view;
 A world of beauties wherein nought is found
 But shows a Maker's care how watchful and profound!—
 And let him now, but for an instant, gaze,
 On that fair scene that greets his dazzled eye;
 The gorgeous picture that the sky displays,
 As clouds float o'er clouds in heaven's bright arch of blue—
 And this is all for him!—oh if his heart swell not to ecstasy,
 Bitter must be the hour that sees that murmurer die!

F. H. W.

QUIZZING.

IN the present very refined state of society, many accomplishments are sedulously practised, about which our great-grandmammās—good souls!—never dreamt in their afternoon nap; and which (could they but hear of them) would, I verily believe, cause them to lift up their hands and eyes in mute and marvellous astonishment. Among these novel acquisitions—these offspring of the nineteenth century—quizzing stands paramount, a gem of the first water, a star of the first magnitude. It is, indeed, as necessary to the exclusive as a moustache to a cavalry officer, or a billet-doux to the belle of the boarding-school, and as such must be considered “part and parcel” of the legitimate accomplishments of one fitted to go forth into the paths of the beau-monde and mingle with those illustrious individuals who shine, planet-like, in the brilliant hemisphere of ton. To be incapable of quizzing—to be either too diffident or obtuse,—too compassionate or abstracted to seize certain points of the ridiculous in the mien, manner, garb, or garniture of your friends or intimate, the modest stranger seen for the first time, or the shrinking novice trembling under the agonies of a débüt, argues a want of spirit, tact, and discrimination sufficient to sink you into utter insignificance, and consign you, for the term of your natural life, to the supercilious pity of your associates as “a very well-meaning sort of personage—somewhat maudlin, and indeed destitute of esprit.” To avoid this disastrous conclusion, to escape the shrugs and sneers and commiserating looks of your friends, it is necessary to cultivate the talent of ridicule, in fact to become, by due training, a quizzer—a free, genuine, downright quizzer—and that your studies may be, in some measure, facilitated by the suggestions of experience, I venture to throw together a few desultory hints, to which! you can, occasionally, refer for assistance in your career.

My brief reflections are principally intended for the benefit of country gentlemen, and Tyros from Oxford, emulous of becoming skilful and dexterous quizzers, but I must avow that I would fain comprehend among my pupils, the young and beautiful of the fairer and better part of creation, those bright and sylphid creatures who, catching the reflection of their loveliness in the mirror, turn, half-blushing, from the bewitching vision, and feel, for the first time, the desire of conquest.

It is true—too true, that I am a bachelor—and I confess, with a sigh, an elderly one—but Time has not yet frozen my heart, although the inexorable despot has, long since, forced upon me the assumption of wig, spectacles, and gouty pantouffles. I can, still, gaze with emotion upon a brilliant eye, lucid with tenderness, or gemmed with the pearls of compassion; still view with delight a cheek suffused with a bright damask blush, and welcome a lip vivid as the ruby, illumined with the exquisite spells of a smile.

“Who can curiously behold
The smoothness and the sheen of beauty’s cheek,
Nor feel the heart can never grow all old.”

Childe Harold; Canto III.

Since, then, I am neither so juvenile as to incur the risk of being set down as a presumptuous greenhorn, nor so aged as to be Burked as a

crabbed, crusty, old cross-sticks, whose costume and opinions are as venerable as the hills, I may enter upon my voluntary duty with an anxious and encouraging expectation that my advice will be hearkened to with deference, if not with eagerness.

To become a superlative quizzer requires the unceasing exercise of your faculty of observation, of your memory, your imagination, and judgment; the first is as necessary as a telescope to an Admiral, or turtle and venison to a Lord Mayor's festival; the second will be wanted to assist you in recognising your victims; the third in inventing new weapons and modes of attack, and the fourth in arranging your battery and carrying on the war. Presuming that you have been at the University (I address myself, here, to the ruder half of mankind), it is natural for me to infer that you have succeeded in divesting yourself of that awkward and positively rustic attribute, entitled modesty; that you seldom look down but to admire your extremities, and that you never change colour but with the juice of the grape, or the influence of a midsummer sun. I, furthermore, take it for granted that you have acquired a certain position in the circles of fashion, a station preparatory to one still more enviably distinguished, the ascent to which will be wonderfully aided by a successful practice of the very act upon which I am about to deliver some hints.

Well—you thirst and hunger to be considered a quizzer, an unflinching, inveterate, and immoveable quizzer—one who shall throw a whole dinner-party into a fever, and fill with alarms indescribable the ball-room or card-table; bend an ear then and listen, for as Nature, lavish though she be, has not given unto all an intuitive perception of what is fit and becoming in the character, the whisperings of *experience* cannot be thrown away.

In the first place devote yourself duly and unremittingly to the practice of *staring*: commence by degrees, lengthening the duration of the *stare* until from the furtive and momentary glance, it swells into the calm, cold, open-eyed, and deliberate gaze of some five minutes by your repeater. You may exercise before the glass, or with a brother student: the latter mode is to be preferred, as the advantage is reciprocal, and you become mutually hardened. All agitation of the eye-brow, lid, or lash, and all tendency to aqueous effusion will, in time, utterly subside; but, of course, until you can, despotically, command the organ of sight, perfection is not attained. If you possess eyes large, dark and lustrous, black or hazel, you are, very certainly, felicitous in the admirable opportunity for display afforded by your quizzing operations; and these eyes, be it known, are wondrously adapted to excel in the profession. The one-minute stare of a deep hazel eye is an absolute dead-shot, and effects on the spot, all that the piercing grey or blue orb, though keen as the falcon's, can accomplish in five times the period. Still much may be—indeed is—wrought by a well-sustained stare from a small, round, light, or twinkling eye, and, with due discipline, the ferret's-eye, owl's-eye, cat's-eye, and mouse-eye may be rendered killingly impressive. Blue eyes—those which the song-makers designate as “celestial” or “sapphire” blue, are, however, difficult of management; and it is a question whether or not it is possible to dispense with a quizzing-glass of the most approved fashion and brilliant design. * * *

Having accomplished yourself in the first step, and found staring “made easy,” you may proceed to the next, and after trying the effect of a laugh of sardonic character, run through a scale of sneers from the slight and almost imperceptible, to the marked, withering, and con-

temptuous curve, which speaks more potently than words. A fâde smile is, also, an invaluable auxiliary, and has been known to abash modest worth and artless loveliness as triumphantly as the most imperious stratagem. A loud voice will, invariably, have the effect of disconcerting the timid, but it appertains to the less refined style of quizzing, and with the practice of "hoaxing," may be made over to the junior ornaments of his Majesty's army and navy, the younger members of the two Universities, and the upper forms of Eton and Westminster. To you I should recommend the sneer that accompanies the audible whisper, for this, like the basilisk, is never without its sting, and is certain to kill. In fact nothing can be more fatal aimed at a diffident, quiet, and unobtrusive book-worm from College, and when coupled with a supercilious survey of his whole, from head to foot, it may be esteemed as infallibly destructive as the *aqua-tofana*.

I can scarcely tarnish your pretensions with the suspicion that you would exhibit yourself at a country ball, unless under some powerful inducement, yet could your "exclusiveness" so far *unbend* as to permit your appearance on this scene, you would be, amply, compensated for your condescension. Imagine the company! imagine the innumerable shades and grades of form, face, feature, look, tone, gesture, garb, and ornament! and figure to yourself, if possible, any more fertile theatre of amusement. Allow me to think it possible that your political interests magnetically draw you into the vortex—you tremble with apprehension, and turn pale at the thought of vulgar contagion; *courage! mon ami!* a brilliant dawn is before you, and you may dwell for a day and a half on the glories of the hour! Act as follows:—Select the prettiest girl in the room, if one of the youngest *tant mieux!* but beware of the reigning belles—eschew them! they are dangerous, and would fling back your dart. Having effected an introduction to your victim, station yourself behind her during the quadrille in which she dances, whisper the most bewitching compliments, and in florid terms express your admiration till her cheek deepens to the damask rose; when she ceases dancing, offer your arm for a promenade, which must be continued till another quadrille is on the point of being commenced; at this juncture, gradually draw her into the centre of the room, still besieging her with "honeyed words," and now your victory is near! at the very instant when your fair companion, innocent of your design, expects you to conduct her to the set new-forming, extricate your arm, make a slight bow, accompanied with the words, "I see my party is just entering the room:" and retire, leaving the deserted fair covered with confusion, and gloriously exposed to the flying artillery of her before envying companions. This is a gallant adventure, but the crowning of your triumph has not yet arrived: hasten then, take a brother of the shrug-and-sneer, lounge, carelessly, by the disappointed girl, drawling out, languidly, "rather pretty than not;—no style—*un peu gauche—une coiffure—à faire horreur!*" and dispute with your *aid-de-camp* whether the floral ornaments in her hair are intended to represent "peonies, poppies, or roses." By this stroke you will, to a certainty, achieve the misery of the lady, and wrest from her expectant hopes the not-often-tasted gratification of the evening. Voila! the glory of quizzing is complete! * * *

And now most gentle belles! ye flowers in the garden of beauty! ye gems in the circle of life! a silver-haired bachelor, assuming the privilege of years, ventures to address this portion of his paper to your consideration and bright eyes. I must repeat that my suggestions are designed entirely for the "*exclusives*," and that I must, positively,

prohibit all gathering into corners, all tittering or loud laughing (tha absolute death to good breeding), and all *petits cries aigues*—one and all these must be looked upon as the express artillery of the school-girl and hoyden. To you, fair exclusives! I can permit no more actual demonstration of merriment than a *tempered* laugh or a sweet smile: transient, indeed, must be the expression of contempt that curls your upper lip—vanishing almost in the instant—and but just sufficient to communicate your sentiments to your companion, whom we will suppose to be the accomplished quizzer into which the preceding instructions have aided to raise him. “*Staring*” with you, fair girl, is out of the question—a thing not to be dreamt of, but a slight glance of astonishment or surprise will, with you, prove a brilliant assistance. I need scarcely forewarn you not to derange the exquisite repose of your features by any indication of feeling; leave this to the vulgar, with whom nature is ever paramount to art; let me presume you, languidly, leaning on the arm of your friend, and promenading the aforesaid ball-room in search of the grotesque: yourself and companion can interchange remarks on the crowd around you, and may consider *all* your legitimate game—all fit marks for the keen shafts of your quiver. Worth, talents, learning, goodness, beauty, and modesty—what are they?—mere smoke and vapour! let the old-fashioned and ridiculous—the dreamers of the days that are gone—let these view them as shields of defence from the arrows of quizzing—you spare them not. If the coat be not “built” by Stultz or Nugée; the millinery by Victorine, and the *bijoutrie* furnished by Howell and James—if the proprietors smile out of place or of form, or become guilty of any heresy in ton, spare them not! they are yours, and may be dispatched “without benefit of clergy.”

In an open country at noon-day, it is strange if a traveller loses his path, but in the tangled woods by midnight a guide and a torch are absolute blessings; so here let me whisper how to poise the weapon when the prey is slippery or dangerous. The minister is thrown out, or the member is dead,—an election for the county approaches—all is expectation and tumult, and promises and patriotism become as drugs in the market; the gentlemen of your family are suddenly transformed into the most condescending, free, jovial, gallant, rattle-pated cavaliers imaginable, with a warm shake of the hand for the “brave,” and a merry glance and sly kiss for the “fair;” while the ladies go forth robed in smiles and loveliness, and all courtesy, sweetness, and melting tenderness, ask after the health of old cobblers, and caress dirty-faced babes with extraordinary rapture. A ball is projected, to open the hearts of the voters, and you are obliged to lay aside the mantle of dignity, and dance with the son of some large landed-proprietor; the temptation to quiz is irresistible: but few persons are so utterly obtuse as not to discover when they are ridiculed—to conciliate the voter is a point with your party, but your amusement must be enjoyed. “How?” you inquire; nothing more easy! listen to his stories of horses and dogs, of hunting and shooting, with winning suavity and apparent interest, and having “fool’d him up to his bent,” your diversion is secure; the few smiles you have bestowed have raised him to the pinnacle of self-complacency, his cheeks blush with pride, he stands on tip-toe, and his exertions in the dance become more daringly conspicuous, till at the finale, leading you to a seat he gives you a fox-hunter’s “squeeze of the hand,” and vows that “your Ladyship is a very nice girl.” His attentions doom you to martyrdom, but take courage! faint not! the election ensues, he votes for your father or brother, and receives his congée, falling at once from the sublime heights of ambition and love,

And now you may seize every point of the ridiculous in his appearance ; his new blue coat—his bright metal buttons ; his complexion emulous of the full blown rose ; his exploits in the field, his honest self-love, his blunt good-humour, his simplicity, and occasional bashfulness—all these are fair sources of amusement, and, properly handled, cannot but prove productive. * * The minor features of “quizzing” I resign to your own arrangement, doubting not that by the aid of a natural genius, you will arrive at an enviable rank in the art ; but to attain this position so sighed after by many, certain essentials are called for, and in writing down as a *dead letter* the Divine injunction “Do unto others as you would that others should do unto you!” learn to root out of your bosom the sweet attributes of cordiality, gentleness, and good-will, filling up the void with heartlessness, severity, envy, and malignity, for, believe me, if you lack the latter qualities, you may be a very amiable individual, but can never be “a quizzer.” A French author has remarked that “*la moquerie est souvent une indigence d'esprit* :” but be not deterred by this sentence ; do not, from the fear of being deemed a simpleton, deny yourself a pleasure which though adapted to the meanest capacity, is still one of the most important ingredients in fashionable “small talk.” Quizzing! dear delightful quizzing! who shall presume to decry thee! who shall venture to pronounce thee “the bane of good breeding” and “the pest of society!”

What can be more gratifying to one's *amour-propre* than to mark out, triumphantly, the deficiencies of others! to forget the beam in our own eye, and pluck the mote out of that of our brother—to point the finger of scorn at the ridiculous in our neighbour, while we walk forth armed at all points with the belief that we are invulnerable! our dress, our mien, our manner—all exquisite, all *recherché*, all *comme-il-faut*! Glorious and delectable delight! to insult merit, to abash loveliness, to alarm timidity, to crush inoffensiveness! How many a friend has been for ever alienated! how many a duel has been occasioned! how many a character has been destroyed! how many a fair prospect overcast! and how many a noble breast lacerated by the “harmless—the very harmless pleasures of quizzing!” Avaunt! thou insidious tormentor! let those cultivate thy enjoyments who prefer rendering others ridiculous and wretched to being themselves amiable and estimable. Such as are unfashionable enough to seek for cheerfulness and tranquillity in that extended charity which induces compassion for the mental and bodily infirmities of their fellow beings; and whose benevolent feelings throw a shield of generous protection over the misfortunes and deficiencies of others—such will avoid thee with a shudder, and pursue their inoffensive road to happiness, soothed by a recollection that much may be pleaded in palliation for conduct which militates against their opinion when they consider “*quæ fuerant vitia, mores sunt*.”

C. L. E. P.

THE KING'S GUARD-CHAMBER, WINDSOR CASTLE.

THE decorations of the King's guard chamber at Windsor Castle have been so much altered of late, that probably a description of its appearance at his present Majesty's accession may be agreeable to some of our readers. This fine apartment, seventy-five feet in length, is placed at right angles to the magnificent hall dedicated to St. George, the entrances into which open from it.

Just before the demise of George IV., whose taste has been generally acknowledged, Sir Samuel Meyrick was honoured with the commands of that Monarch to select and arrange what armour and weapons he thought proper, so as to give to the room the best possible effect; and the Board of Ordnance was directed to grant him the assistance of Mr. Lovell, superintendent of the small armoury department, and Mr. Stacey, of the *depôt* in Tooley-street. His Majesty was pleased to approve most highly of Sir Samuel's ideas on the subject, but did not live to see them realized.

Those who have inspected what is termed Queen Elizabeth's Armoury, at the Tower of London, must have witnessed with what skill Mr. Stacey can display the various parts of modern weapons, as ramrods, gun-barrels, locks, bayonets, gun-stocks, swords, &c. In like manner various stars, laurel branches, and such like devices of a novel, yet appropriate character, were selected and revised by Sir Samuel Meyrick for the King's guard-chamber at Windsor. It is but justice to state that one, by no means apparent, advantage in Mr. Stacey's contrivances, is the important fact that by such an arrangement of the several parts of weapons, they are not injured in the slightest degree, but remain quite in a fit state to be put together at a moment's notice.

Mr. Lovell also, combining with great practical knowledge, a thorough acquaintance with the forms and fastening of armour, afforded equally valuable assistance.

Besides the decorations already described, and tasteful groups of ancient weapons procured and arranged by Sir Samuel Meyrick, were the following:—

As the principal point of attraction over the chimney-piece, in a glass case, was deposited that extremely beautiful target of Henry VIII., which had a similar position in the octagon library in the late Buckingham Palace, and which George IV. ordered to be removed at the express request of Sir Samuel. This exquisite work of art, made of steel, is ornamented with bas-reliefs plated with silver, on a ground of niello, &c. and said, with good reason, to have been chased by the celebrated Benvenuto Cellini, and a present to the English Sovereign by Francis I. King of France. The subject of them, distributed in four compartments, accompanied by a Latin inscription, is the contest between Cæsar and Pompey. This delightful specimen has been placed on a pivot, so that by turning it round, the bystander can conveniently inspect every portion.

As this is exactly opposite the centre doorway of St. George's Hall, above the fire-place was a representation of St. George and the Dragon, so as when open to be seen through it. This was composed of a youth's suit of armour, richly engraved and gilt, of the close of the reign of James I., and placed in such manner as that the supposed wearer was striding over one wing of his bestial enemy, and thrusting his lance into its mouth.

Behind it appeared a glory, designating a holy personage, which was formed of ramrods, on a gilt ground. The scales of the dragon were made of sword-blades turned blue, and it was seen issuing out of a jungle of rushes composed of similar materials, shining bright. The emphatic words of his late Majesty, on being shewn the design by Sir Samuel Meyrick were, "now we shall have something worth looking at;" and those who saw it can bear testimony that the grouping justified the prediction. But alas! the decorations were not completed till the 9th of July, 1831.

On a corbel labelled A. D. 1612, on the right side of the fireplace, was a magnificent suit of armour of bright steel and gold, made for the interesting Henry Prince of Wales, ornamented with his initials and the thistle and rose. This young man's premature death was greatly regretted by the nation, as his love for, and proficiency in, the military pastimes of the day, were much more suited to the temper of the times than the peaceable disposition of his father. A part of the additional armour for the tournament was placed at his feet, and the remainder on the next corbel.

On a similar support on the other side of the chimney-piece, and inscribed A.D. 1620, was a suit that probably belonged to his brother Charles, Prince of Wales, afterwards King Charles I. on which several naval and other trophies were beautifully engraved.

Next, on a corbel dated A.D. 1635, was a suit of armour attributed to Prince Rupert, with the grand guard affixed in readiness for the tournament.

The one after has the date A.D. 1596, and the armour is called that of Robert Devereux, Earl of Essex, the spirited but unfortunate favourite of Queen Elizabeth. The ornamental engraving of this suit is peculiarly chaste and elegant.

A complicated trophy of arms and armour, in which were to be found various beautiful and rare pieces, was grouped so as tastefully to occupy a very broad space of wall. Another one to correspond was placed exactly opposite.

At the end of the apartment, on each side of the great window, were two niches. In one of these, Sir Samuel placed a suit of the Duke of Brunswick, who lived A.D. 1530, and was ancestor of his present Majesty. It was at his suggestion removed hither from Carlton Palace, having been originally brought from the arsenal of that dutchy. It was of bright steel, and finely engraved.

In the corresponding niche, having the date A. D. 1588, was a suit of massive tournament armour, which has been assigned to Lord Howard of Effingham, who commanded the English fleet in the memorable victory obtained over the Spanish Armada.

Over the entrance to this apartment, at its opposite termination, is a gallery, and on this were placed two trophies of arms and armour.

SIR PETTRONELL FLASH.

SCENE—A PUBLISHER'S ROOM.

IN the centre, a large round table covered with manuscript papers, rich sybilline leaves, the value of which increased in the ratio of their deficiency—Grammars of the Chinese language, in octavo, essays on taste, and lectures against taste, physics, and metaphysics, histories past, present, and *future*, prosaical poetry, and poetical prose—old sermons distorted into modern addresses—infant schools and systems without end—half a dozen dark, heavy-looking chairs, a large sofa, covered with dingy moreen, a black, James the First looking cabinet, with a bust of some modern Cato, jammed between the top and the ceiling, were the chief articles of furniture;—the chimney-piece, the household museum and common receptacle of curiosities and cracked china, was strewn with sundry articles, a large shell, a piece of spar, almost opaque with dust, two or three pill-boxes, pens, spills, and a dirty taper, &c. &c. In the centre a handsome marble dial, with fluted pillars, somewhat improved the appearance of the apartment. Against the wall, a little above the bright oscillating pendulum, hung a pencil sketch of the genius of this sanctuary, over which was an engraving, from Barry's first division of the *Adelphi* series, Orpheus harmonising the barbarian Greeks. With what a sweet, satisfied, complacent eye did the little publisher *critic* glance from Orpheus to himself; if the countenances were unlike, the occupations of each were identical; certainly the "idola specus" of the barbarian and the modern European were somewhat dissimilar, but then the application was the same. Alexander the Great, and Alexander the Copper-smith, have been twin brothers in association. Tant pis for the first Alexander, tant mieux for the last—the balance is struck—" 'tis all one." Orpheus taught the Greeks to fiddle, but the moral Triptolemus of Paternoster is the Titan of the pen—more famed than the spear of Telephus is the fair goose quill—"the mighty instrument of little men." A thick clumsy bell-rope, with a rosette the size of a warming-pan, and a tassel like a pillow, measured the altitude of the room, and hung, dangling over an old-fashioned coal-box. A high-backed easy chair was drawn close to the table, in which reposed the charming person of our little Aristarchus. Mr. P. was attentively perusing some *worn-out manuscript* on Church Reform, national decay, or changes in the moon. To give a slight sketch of our little bibliopolist. No one would have called Mr. P. a noticeable man neither in person nor address; he was a short, spare, frigid-

looking mortal, with a thin sabre-like nose, and a quick, restless, grey eye, which luminous organ might have been often dimmed with the dew of compassion or lit up with the sympathies of a benevolent heart; but from being a *disposer* of books, Mr. P. had presumed to be their judge, and had become one of those unskilful executioners of merit, who pour the "waters of bitterness" into the parent bosom which had nourished it. Cushioned over his orbits was that severe corrugation—frons caperata—of his occipito-frontalis, which is the badge of his judicial office, and the seal of the Aristarchi. Mr. P. was a severe-looking man,—dressed all in "fatal black," he sat the "wizard of the den," surrounded with the battling spirits of defunct "*works*," the "fanhoms of the feather." Tick, tick, tick, said the dial, and the little man read on in silent acerbity. Sir Pettronell Flash, said the boy, swinging open the door with an air of importance. The name was enough—with a startling alacrity the bibliopole rose from his chair; for one brief—too brief moment, Sir Pettronell was exchanging the sweet reciprocities of courtesy, and the silent salutations of the great —. Oh you shakers of hands—you bodily embracers—ye noddors and bawlers in the public streets, ye shameless vulgar—ye base io polli, know you not that Ange-rona was the mother of gentility, and *she* was worshipped in *silence*.

* The salutations of the great are never meteorological,—“the heavens above and the earth beneath” are the properties of the vulgarly honest; with the distinguished, habitual ceremony removes the sense of it, and frees them from embarrassment; the first brief salutation is succeeded by the quick wit and sparkling repartee, or the deep mystery of fashion and the world. The introductory colloquial phrases mark the order of the species—to “compare great things with small.” The aspiring, but not inspired minstrel, strikes with feeble hand the Orphean lyre, shrinking even from the sound he solicits—with magic burst the “Prince of Song” salutes and charms you “*arma virumque cano*.” Trusting his head to Providence, the little bald-headed critic bent down in one, straight, waveless line the whole of his vertebral column,—again he bowed. Sir Pettronell stood erect—his right leg slightly in advance, with a partial lateral submission of the left knee, and a minute incurvation of the big-toe. With one hand Sir Pettronell touched—merely touched—a small tortoiseshell eye-glass, which was supported by a narrow and not very black ribbon, his left hand retained his hat, the heeds of which just impinged upon the fore-arm. With half-closed eyes, Sir Pettronell bowed—slowly and insensibly his head resumed its position. The bow was enough—perfectly translatable—but his name was quite unequivocal. Sir Pettronell—the sound seemed to have been coeval with the flood—so truly noble—so serene. “A rose by any other name may smell as sweet; but oh, an Euphonious name, like Absolom’s

hair, is the "glory of the possessor." A punless name*—a liquidly seductive musical name—like a beautiful face, "*muta commendatio est*," is the sum of good fortune. "Ah! Lucy, what a pretty name is Clementina," said Miss Byron.† Was ever heroine with a vile monosyllabic name. In the creation of EVE, there existed no artificial scale of sounds, no "harmonious discord," no cacophonic words—name was lost in the music of pure tones, and melody diffused itself, like light, around the world. Once more the little publisher bowed. Sir Pettronell quietly inclined himself into a chair. Kind reader, hast thou ever had the misfortune to be mistaken for a gentleman, when thy solicitations were about to give the lie to thine address, to deceive a rich, low, man into obsequious ceremony, and humiliate him by the condescension, oh then pity the gentle Sir Pettronell, and apply to thy own sensibilities the agitation of his, when even the advantages of poverty were denied him, and the thread-bare coat ominously buttoned close up to the chin, was perfectly unobservable in the cimerian darkness of this Trophonian cave. Sir Pettronell was a fine, tall, soldier-like man, one "that would not flatter Neptune for his Trident;" but there was in that mystical eye, a dove-like beaming, that would have once become a "ladies bower." Once—for Sir Pettronell had seen many winters, and long since must it have been when the "singing birds" awakened his young heart. His nose was well formed, advancing boldly from the forehead, but either naturally or by the habit of snuffing, the *alæ nasi* were expanded a line or so too widely—his mouth rather large and voluptuous—his forehead—and here let me pause—'twas not the "jutting and impendious brow" of the mathematician, nor the corrugated front of the logician, "one glance was as good as a thousand," broad, clear, and unclouded, "*Frons ubi vivit honor*"—poor he might be, but like Sir Lucius, "he was too poor to do a mean action."

No one would have called Sir Pettronell old, though the white hairs could hardly be numbered. Sir Pettronell would have called himself young—his small white hand played with the said eye-glass, which seemed, judging by the vividness of his eyes, to have been merely an outlet for physical irritability, like Coleridge's frill, which he twisted and screwed as the "winged words," *verba alata*, escaped from his vibrating lip—the hands instantly sympathise with the tongue; there is a mototary sympathy. Sir Charles Bell has forgotten the chief glory of the hand; the mechanism is curious, but it is the moral expression of the hand which is the theme of its praise, the spirit of motion, which gives grandeur and sublimity to the eloquence of a Demosthenes, which, as an electrical rod, touches the inmost soul and awakens the echoes of its passions.

* Shenston solemnly thanked God that his name was not liable to a pun.—See "*Curiosities of Literature*."

† Sir Charles Grandison.

While taking this sketch of Sir Pettronell's "outward-man," which the attribute of my "invisible ubiquity," would allow, he was sitting directly opposed to the little, sharp-looking Aristarchus, whose oscillatory movements too plainly expressed his uneasiness at the taciturnity of his visitor; vain it was that the little bald-headed book-keeper bowed and bent, blew his nose, rubbed his bearded chin, blew his nose still louder—and louder still—he awakened only the silence and solitude around him. Sir Pettronell was dumb—abstracted, immoveable, with his gleamy eyes fixed upon the dingy window of the apartment, and save that between the two first fingers of his right hand, he slowly swung the afore-mentioned eye-glass, he was moveless as a statue—still the ribbon and the glass swung to and fro—like a lone bird in the wilderness, the swing, swing, gave a horror to the silence. The bibliopole's eyes began to glisten in snake-like sympathy—a sort of incubus looked Sir Pettronell; the little man could endure it no longer—seizing with a spasmodic grasp a newly-published work which lay on the table, and making a sort of preparatory cough or scream, to assure himself of his existence—once, twice, and his tongue cleaved to the roof of his mouth; closing his eyes, he threw himself back in the chair, and with a groan unutterable pronounced Sir Pettronell in a tone rather louder than was absolutely necessary. Merciful heavens! different soils produce not more variety in the "world of vegetation" than is created by circumstances in man. Sir Pettronell did not jump off his chair in a startling sympathy with his associate, but quietly relinquishing the chaste past-time of counting the clouds through a London atmosphere, fixing his eyes on Mr. P. the almost silent responsive *Sir*, pronounced in a sort of audible whisper, was more distressing to his auditor than the noisy vociferation of a madman. The charm was broken—Sir Pettronell waited in silence. The confused bibliopole turned rapidly over the uncut leaves of the book he had resorted to. Sir Pettronell did not even reiterate the little monosyllable, but looking him full in the face, awaited in silence the proffered communication. I was going to ask—that is, I mean, I was going to inquire—(the idea of asking a nobleman his business; pah! 'twas impossible)—have you seen this new work, Sir Pettronell? just out, vastly clever—said to be by a young Lord, glancing an inquiring look at Sir Pettronell, vastly witty, young, handsome, and highly talented. Are you speaking of the book or the author? Sir Pettronell mildly asked, taking the proffered work from the hand of the disappointed Aristarchus, who had said anything but what he desired, which was to have inquired of Sir Pettronell who Sir Pettronell could be, and what Sir Pettronell could require. Admirable, said Mr. P. to Sir Pettronell's remark—admirably cutting—you are quite one of us. Sir Pettronell did not laugh, but extracting from the tail of his coat a bundle of papers, he placed them in the hand of the astonished little

publisher. Mr. P., said Sir Pettronell, I am aware I am a stranger to you—my name is Sir Pettronell Flash—here Mr. P. bowed (though not much the wiser for the information.) Who I am is of little consequence, and for the present I choose to be unknown. I am a gentleman—here Mr. P. bowed very low, because the term implied independence and patronage—I wish you, continued Sir Pettronell, to peruse carefully the manuscripts you hold in your hand, and in a little time I will return and receive your opinion—a man who is constantly supplying the tables of the public must know well what is best suited to their taste. The writer of the papers is a friend of mine, one to whom I am warmly attached, and am, therefore, anxious as to his success. Should you think the papers unworthy of notice, the author will be too proud to solicit it; and since he does not behold his intellectual offspring with the “bliss of excessive fondness,” neither will he condescend to be an eleemosynary suitor for public bounty. I submit these manuscripts to you, relying on your judgment, and confiding in your probity. Here Sir Pettronell paused; the little critic, as might be supposed, made a bow—a low bow—yes, a very low bow. Sir Pettronell rose from his chair, and moved towards the door. Mr. P. not knowing exactly what to say, and yet by habit knowing what to do—moved after his upright comical visitor, for the purpose of bowing him into the street, and to see whether he rode or walked, went up or down the row, &c. Sir Pettronell was aware of the thing and waving his hand—like Hamlet in the play—motioned the little man to his chair. I insist on it, Sir, that you do not rise—for once I can dispense with ceremony. The critic was as immovable as Lot’s wife. One more graceful bend of the neck, and Sir Pettronell closed the door—one, two, three, four, five steps, and all was as silent as the grave.

Most extraordinary, said little Mr. P., starting from his chair, most mysterious; what is he? who can he be? Once I thought I smelt the poor author—one of the poor proud Quixotte’s of literature; but then his manner was potent as a Lord’s. Hollo, Sir boy—opening the door—did that Sir Pettronell come in a carriage? No, Sir, cried the boy. Nor coach nor cab—did he ride home, wherever the devil it is. No, Sir, again cried the boy. Here the little man took up his hat and departed.

The visit and departure of Sir Pettronell, as described in the preceding page, occurred on the morning of one of those cold, rainy November days which are a certain stimulus to fire-sides, arm-chairs, and recent novels. On the evening of the same day the bibliopolist was sitting in his private room—his snug hibernacle, ten feet by eight—a blazing fire threw its cheerful gleams over the apartment, giving to the most trifling object an uncertain and interesting appearance by the changing lights and shadows, as the flame peered up, or flickered low and feebly.

The candles were as yet not lighted. Mr. P., like a true "fire worshipper," was burning his shins to his perfect satisfaction, the table was close to his chair, his chair close to the fire; but there was not that abandonment in his reclining figure which marks the idle man, in his easy chair; there was a compression and twitching of the lips, an epileptic sort of stare, a rigidity of the whole frame, which betrayed a moral abstraction, to which Mr. P. was not accustomed. Who this mysterious Sir Pettronell was the little man had been quite unsuccessful in discovering, and his perturbed spirit even now vibrated under the misery of unsatisfied curiosity. Who can he be, most inexplicable man, the name familiar to no one. Who can he be, murmured the vexed bibliopole. Here Mr. P. lighted the candles, and opened the manuscript papers left by Sir Pettronell; to judge by the several titles, the papers offered the most agreeable repast, such as *** *** ***; but as things must have a beginning (from the creation of the world to the unities of Aristotle), Mr. P., with all worldly wisdom, desired to be acquainted with the host before he partook of the entertainment. We therefore begin—in the beginning was chaos—"rudis indigestaque males." How know you all this, do you ask? How do I know! If you please, suppose that I had the cloak of Mephistophiles, or "as quaint Ariel, like to a nymph of the sea, subject to no sight, invisible to every eye-ball"—or perched with Asmodeus on the glowing ball of St. Paul's, or even astride the little critic's chair, peering over his shoulder, for "we have the receipt of fern seed."*

Z.

* It may not generally be known that to several plants, the old herbalists attached a magical power; thus the vervain, *Verbena officinalis*, was given to conciliate friendship, and hence Shakspeare alludes to the power of the fern-seed in bestowing invisibility. John Parkinson, in his *Theatrum Botanicum*, 1640, thus curiously describes the magical virtues of the *Felix mas vulgare*:—"The seed, which this and the female fern do beare, are to be gathered only on Midsummer eve, at night, with I know not what conjuring words, is superstitiously held by divers, not only mountebanks and quack-salvers, but by other learned men, to be of some great secret hidden virtue"—(see *Tribe 10 Felices*, page 1039); but if the age of charms is gone by, and even his present Majesty King William "of blessed memory," forgets to cure his people's "evils" by "touching them," and though we no longer weave the tapering vervain into a pyladean cestus for an amicyciary tie, still are our minds linked to superstitions which seem the physico-spiritual chain between time and eternity.

"Hominibus vitæ finis mors non
Autem superstitiones."—PLIN.

CHARLES II.

To the Editor of the Analyst.

SIR,—I was much pleased with the article in your last number relative to Charles II., and permit me to say that the more papers you publish upon topics connected with local antiquities, the more the interest of your periodical, to the success of which I am a hearty well-wisher, will be strengthened among the generality of your readers. Now certainly, as Mr. Hughes observes in his Introduction to the Boscobel Tracts, p. 12, “at no time did the character of Charles II. appear to so much advantage as at the period of the battle of Worcester, and had he met his fate there, history would have lost a theme of reprobation in a bad king, and gained as respectable a hero as many whom it has thought fit to immortalize.” For it seems a settled point with all historians of credit and authority, that after his accession to the throne, he became, as Mr. Fox has briefly but most impressively styled him, “a bad man and a bad king.” Accordingly, some writers have deemed it an unaccountable circumstance why a great people who had put down the tyranny of the father, should not have opposed another revolution as a barrier to those passions which the son had let loose upon them for the destruction of their national religion and liberty. In a very able article* in the *Edinburgh Review* on that illustrious man’s history of James II., we meet with the following observations:—

“There are three great events of which it appears to us, that the story has not been intelligibly told for the want of a correct analysis of the national feelings. One is the universal joy and sincere confidence with which Charles 2nd was received back without one stipulation for the liberties of the people, or one precaution against the abuses of power. This was done by the very people who had waged war against a more amicable Sovereign, and quarrelled with the Protector for depriving them of their freedom. It is saying nothing to say that Monk did this by means of the army. It was not done either by Monk or the army, but by the nation; and even if it were not so, the question would still be, by what change in the dispositions of the army and the nation, Monk was able to make them do it. The second event, which must always appear unaccountable upon the mere narrative of the circumstances, is the base and abject submission of the people to the avowed tyranny of Charles when he was pleased at last to give up the use of Parliaments and to tax and govern on his own single authority. This happened when most of those must have still been alive who had seen the nation rise up in arms against his father, and within five years of the time when it rose up still more unanimously against his successor, and not only changed the succession of the Crown, but very strictly defined and limited its prerogatives. The third is the Revolution itself; an event which was brought about by the very individuals who had submitted so quietly to the domination of Charles, and who, when assembled in the House of Commons under James himself, had of their own accord sent one of their members to the Tower for having observed upon a harsh

* Vol. XII., 1808, p. 284.

and tyrannical expression of the King's, that 'he hoped they were all Englishmen, and not to be frightened with a few hard words.' It is not to give us the history of these events merely to set down the time and circumstances of their occurrence. They evidently require some explanation, in order to be comprehended, and the narrative will be altogether unsatisfactory, as well as totally barren of instruction, unless it give some account of those changes in the general temper and opinion of the nation, by which such contradictory actions become possible."

Now, Sir, I think that the political phenomena here set forth for our consideration by the Edinburgh Reviewer, have been satisfactorily elucidated in a paper in my possession, belonging to a deceased friend, and who was deeply read in the constitutional history of our country, and therefore I will transmit to you his remarks on this interesting topic in nearly his own words.

The writer in the Edinburgh Review supposes that there is an apparent inconsistency in the three events of which he speaks, and he proposes to account for it by the investigation of some alleged but not specified changes in the national character and opinions, such as occur, he says, from age to age.

The three events are, 1st—the joyful and unanimous and unconditional restoration of Charles the Second; the subsequent acquiescence in his attempts to govern without Parliaments; and the third—the Revolution, accompanied by a change in the succession of the Crown and a limitation of its power.

All these events took place within a space of 28 years; and if we carry our examination back to the commencement of the civil wars, even then the whole period included in the inquiry would be less than half a century.

It is difficult to suppose, that in so very short a space of time as this, a change was originated in the national character sufficient to account for any very glaring inconsistency, if such there was in the transactions of those days. But in truth it does not appear at all out of the course of human affairs, that a nation wearied out by twenty years of civil war, confusion, and military despotism, and menaced with an immediate renewal of those calamities in consequence of the death of the usurper, and the acknowledged weakness of his successor, should fly with some impatience, or even with inconsiderate haste and confidence, if the fact were so, to the only authority under which they could look for peace. Nor is it surprising, though much less justifiable in sound policy, that when the restored monarch broke his faith and violated the constitution which he was called back to re-establish, the recent memory of the evils consequent on armed resistance, joined to a well grounded distrust in the views of some of his opposers, should have led to a temporary acquiescence in his unconstitutional usurpation of power. It is by no means clear, that this acquiescence would have been prolonged even had he lived. It was quite natural, that when the same or even some much more violent infractions of law were attempted by his successor, a man of far inferior talents, worse judgment, and less popular character, the nation should by an unanimous effort

depose him, and then set limits to the authority of the new sovereign whom they placed in his stead.

If in addition to this general view it was to be asked what peculiar causes arising from the events and character of those times most contributed to the course which these transactions took, I should look not to any change in national opinions, but to the uniform operation of that which I conceive to be the leading characteristic of our whole history from the Reformation to the Revolution. What most distinguishes that period from those which preceded and followed it, is the intimate connexion and decisive influence of contested religious opinions on political conduct and principle, which have indeed had some effect on every part of our history, but which I hold to be the master key of the internal affairs of this country during the latter half of the sixteenth, and nearly the whole of the seventeenth century. He then who should write a history of the civil wars, and conclude that, because of the two sets of men into which the popular party was divided, that from one set of men calling themselves Presbyterians, and another set Independents, therefore the contest was mainly a religious dispute and not essentially a struggle for political power, would betray, in my judgment, a most complete ignorance of his subject. It was religious zeal that inflamed the civil discontent of the English into civil war under Charles the First. It was the same feeling, operating still more powerfully in Scotland, that produced the first open resistance to the King, and his final overthrow. With him fell the Church of England, with whose cause his was inseparably connected. But with her downfall commenced the disunion of her adversaries; and the Presbyterians, the first movers of the civil war, found themselves in its progress as much depressed as those against whom they had taken up arms. Both were completely trampled upon (though forming together a very large majority of the nation) by an army which was wielded by the Independents, and was the main instrument of Cromwell's usurpation. Both, therefore, united in earnestly desiring a change in their condition, and when the jealousy of the Presbyterians had been quieted by the declaration from Breda, both zealously co-operated in the restoration of the hereditary Monarchy under which form alone it was evident there was any possibility of composing these evils. In this state of things no reasonable man could venture to incur the hazard of imposing previous conditions on the King. The discussions of such conditions must immediately have divided the two parties whose co-operation was necessary for the accomplishment of that great work. In the mean time, the danger from the army was imminent, and the interposing such a theme of discord as the imposition of new constitutional limitations on the Crown, must, in all human probability, have exposed the country to many years more of civil bloodshed and confusion.

It is not true, that immediately after the Restoration, all security for the public interests and liberties was neglected. At a subsequent period, and at no great distance of time, Charles shewed himself in his true colours. But it was beyond any ordinary calculation of political probability, that the Monarch thus restored, should happen to be one of the worst men ever entrusted with power in any age or country.

Among his innumerable errors it was not the least, that his measures almost immediately drove back the Presbyterians into irreconcilable enmity to his Government, and created at the same time a very general, and as we now know, a very just alarm throughout the nation of his disposition towards the re-establishment of Popery.

But the Church of England deceived themselves on this subject; they shut their eyes to the dangers on the side of Popery, and looked only to the evils which they had experienced from the prevalence of other sectaries. They persevered in their former support of the Crown, and this the more in proportion as they saw it more strongly assailed by the same adversaries, whose hostility to themselves they knew to be indisputable.

To this blindness they had well nigh sacrificed the established religion and the established constitution, to both which they were sincerely attached. But the madness of James the Second at length opened their eyes. His determined purposes of hostility to both could not be mistaken, but his means of giving effect to them were far less than those of his brother; his talents much inferior, his judgment weaker, and his person and character almost universally unpopular. It was then that the Church of England roused herself. The whole kingdom was thus united as one man against his designs, he stood alone against the whole body of his subjects, and the revolution which deprived him of his Crown, was not only peaceable, but unanimous.

Those whose previous weight, station, and character in the country authorized them to take the lead in such a crisis, had nothing to apprehend: whatever the public interests demanded might at that moment be safely undertaken and easily accomplished. Happily, their own tempers and the necessity of avoiding to wound the prejudices and feelings of the various persons and parties to whose co-operations they owed their strength, and the nation its security, alike inclined them to moderation and caution. They proceeded rather to repair than rebuild; they rested on old foundations, trusting, and as experience has shewn us wisely trusting, to the facility with which a Government, such as they established it, might and would accommodate itself to the unforeseen exigencies of succeeding times.

Here terminate these luminous remarks, for none of your readers will, I think, disagree with my applying this epithet to them. Now it is much to be regretted that such considerations

as the foregoing did not enter into Mr. Fox's conceptions of the limits of legitimate history, as he would have treated them with the hand of a master. His not deeming the usefulness of history to consist principally in unfolding the causes and results of political changes, renders this article, in my opinion, an additional acquisition to "The Analyst."

I am, Sir,

Yours, &c.

HISTORICUS.

Great Malvern, Jan. 22, 1835.

TO CHARLOTTE.

"Around her shone
The nameless charms unmark'd by her alone;
The light of love, the purity of grace,
The mind, the music breathing from her face;
The heart whose softness harmonised the whole—
And oh! that eye was in itself a soul!"

BYRON.

"Years have not seen, time shall not see
The hour that tears my heart from thee."

IBID.

I'd wait for thee—aye, fondly, *wait for thee*
Till vanished expectation's latest ray,
And, one by one, sweet hopes, all silently,
Like roses with'ring, droop'd and died away.

I'd wait till joy was lost in sable gloom,
Till dreams—ev'n dreams had perish'd into air,
Till all, *but love*, lay shrouded in that tomb
Whose seal is graven with one word—"Despair:"

Yea! till the summer verdure of my years
Had faded in life's "sere and yellow leaf,"
And waning smiles dissolv'd in bitter tears—
Prophetic messengers of cureless grief!

And, thus, borne down with suff'ring, mute but deep,
Heart-wrung and spirit-broken, to the grave
I'd wend, unplaining, never more to weep
O'er shatter'd peace which naught alas! could save!

Yet *unto thee*, when bending o'er my clay
One tear of pity thou shouldst yield to me,
A pleading voice, in whispers low, should say,
"Why tarry love? I watch and wait for thee!"

EDWARD.

Dec. 6th.

AN ACCOUNT OF AN EXTRAORDINARY METEOR,

Seen at Malvern, November 13, 1832,

BY W. ADDISON, ESQ., F. L. S.

Communicated to the Royal Society by Dr. Maton.

ON my return from Malvern Wells, at half-past one in the morning of Tuesday the 13th of November, my attention was arrested by a sudden burst of vivid light in the heavens. The moon was at the time shining brilliantly, and the line of light, (which was a little above and between that luminary and the two principal stars in Gemini,) continued three or four seconds, and then gradually melted away into a thin nebulous appearance which bent and contorted itself very curiously. The weather the whole of the preceding day had been extremely foggy; but, as is sometimes the case at Malvern, those houses situated highest upon the declivity of the Hill, were quite above the dense vapour which was spread out like a vast sea below, undulating to and fro, sometimes reaching and shrouding higher portions of the Hill, and then subsiding, leaving them quite clear. The vapour was in this condition when the light excited my notice. In descending the Hill I became enveloped in fog; the moon then became partially obscured, and the stars quite invisible. I shortly afterwards observed a slight flash of light, and a post-boy whom I met with, stated, that he had seen lightning *through the fog* several times, and once in particular, about two hours previous, the sky, to use his own expression, "opened and shut—but not like common lightning." This information induced me to continue my observations, and I soon perceived, through the mist, a very large meteor shoot across, leaving a long line of light behind. I resolved to mount the Hill, in order to get clear of the fog, and endeavour to ascertain from what cause these lights proceeded. Having ascended a considerable distance, and emerged from the dense vapour below, I found the moon and stars shining most brilliantly—the atmosphere perfectly calm—and the hoar-frost coating the ground. Continuing my ascent towards the summit, I beheld one of the most extraordinary and beautiful spectacles that was ever witnessed—a constant succession of meteors of various degrees of magnitude and brilliancy. The smaller meteors were like what are vulgarly termed shooting stars, leaving behind them a train of pale light; those of a larger description were much more brilliant, and, notwithstanding the brightness of the moon, they threw a strong glare upon everything around. The latter always commenced from a small luminous point, rapidly increasing in size and brilliancy, shooting with great swiftness across a considerable

arch, and then suddenly disappearing, leaving behind a long train of very vivid white light, which slowly became changed into a pale yellow, the latter remaining sometimes for two or three minutes, occasionally even for a still longer period, becoming broader, contorted, and faint before entirely vanishing from my view. At one time, three or four of these luminous bodies would appear at the same moment, frequently two very near together; at another I could scarcely turn sufficiently quick to observe the spot whence the glare of light arose. Once, in particular, three very large meteors became visible at the same moment, presenting a most beautiful appearance. The recurrence of these phenomena was so rapid and continued, that in the brief space of *five minutes*, by turning about in different directions, I counted *forty-eight* of these meteors, of different magnitudes.

In contemplating this scene, of the sublimity of which I had no previous conception, a variety of ideas crowded upon my mind. My situation was novel in the extreme—standing upon a dark pinnacle of the Hill, sparkling here and there with large crystals of hoar-frost, shut out, as it were, from the world by a vast sea of white vapour, whilst meteors of great magnitude and brilliancy were momentarily bursting upon me, I felt some degree of awe, and should have descended but for my desire to continue my observations, which I did for upwards of an hour.

In order that the reader may form some idea of these luminous bodies, I will here observe that they varied in size and brilliancy from a magnitude equal to Mars or Jupiter to that of a Roman candle, some being even much larger than the latter, throwing out a strong glare around, and leaving a long stream of light behind. It is, perhaps, impossible to judge, with any degree of accuracy, of the distance which these bodies were from me; the smaller meteors appeared to be near, but the larger and more brilliant ones far off.

On the following day the weather was very foggy; towards the afternoon the wind arose from the southward, the fog gradually ascended, and during the night a great deal of rain fell. The next day was fine and warm, but cloudy; during the night it rained heavily, as it did also on the 15th, with a northerly wind.

I forbear attempting any explanation of the causes of these singular phenomena. I may, however, remark that there must be a great difference in the electrical or other condition of the air and vapour, to account for the dense fog lying at one time in a confused mass upon the surface of the earth, leaving the higher regions comparatively free, and at another to assume the arched, distinct and compact form of a cloud, in the upper regions of the atmosphere.

The light emanating from these meteors was observed, through the fog, on the same night in Sussex, Gloucestershire, the Isle of Wight, and in Yorkshire; and an appearance very similar to what I witnessed was seen in the neighbourhood of Geneva, the details of which were given, upon report, by Professor Gaultier.

REVIEWS OF PRINTS AND ILLUSTRATED WORKS.

"The Comic Almanack for 1835; with twelve Illustrations of the Months, by George Cruikshank." London, C. Tilt, Fleet Street.

That the Press caters as assiduously for the mental appetite of the million, at the good old season of mirth and festivity, as the confectioner does for their gastronomic indulgence, is obvious from the profusion of elegant, fanciful, and humorous publications brought forward as tributary to the period. We have literary *cadeaux* of all descriptions, from the aristocratic annual gleaming in gold and amethyst, hot-pressed, embossed, and splendidly illustrated, to the humble pocket-book in scarlet morocco, embellished with a neat little head of "H. R. H. the Princess Victoria," twelve vignette views of gentlemen's country seats, and a scene from a popular novel; and among other attractions containing some half-dozen conundrums, and the "*new*" music of an obsolete quadrille. Fancy is exerted to the utmost in the production of these fascinating gifts, and the fairy volume issues to the public a perfect specimen of combined talent. There is the *sentimental* Annual for the pensive and love-stricken, the *Romeos and Juliets* who are as yet wandering in a world of their own creation; there is the *comic* ditto for the rattle-brained, and the good, fat, elderly lovers of dinners and broad grins, who have danced out of the flowery illusions of boyhood, and become too stout and mellow-looking for sighs and serenades: then there is the *sacred* annual for the devout, and the *commercial* one for the man of business, whose very pleasures must bear an allusion to "trade." And as there is matter for all minds, so there is "price" for all pockets; to wit the five-guinea "large paper" copy with "India proofs before letters;" and the quiet little offering at "one shilling and sixpence, bound in cloth."

Our remarks have been elicited by the appearance of the "*Comic Almanack for 1835*," a risible production from the inimitable needle of George Cruikshank. The idea of this pleasant bagatelle is clever and original: the duty on almanacks was removed by the wisdom of the national legislature; the incubus fell off; monopoly died in convulsions; the privilege of the Stationer's Company became a dream and a dead letter, and lo! the metropolis was inundated with a whole herring-shoal of almanacks, rushing forward under every shape, size, tint and authority, and put forth at prices so astoundingly low that the sober, old, square-toed, brown-coated citizen who annually paid down 2s. 6d. for his "*Vox Stellarum*" stood still, took off his spectacles, wiped them, re-saddled his nose, and stared mute with amazement. From "one penny" to "six-pence" there is the "*Hat Almanack*," the "*Paragon Almanack*," the "*National Almanack*," the "*Sunday Almanack*," and the "*Red and Black Almanack*," and, for aught we know, as many more as there are sands in the sea, or whims in the heart.

The *Comic Almanack*, whose pages lie temptingly before us, is "adorned with a dozen 'right merrie' cuts, etched and sketched by George Cruikshank, and divers humorous cuts by other hands:" the envelope is grotesquely enlivened with witty conceits typical of the signs of the Zodiac; these are, veritably, choice little bits of "fun," and might be effectively placed on the back of that rare old print of the months with a fac-simile of which Strutt has favoured the curious in his "*Dictionary of Engravers*." The jolly young "*Waterman*;" the descendant of Cadwallader with his leek and his *goat*; the artilleryman *ram-ming* down cartridge; the gouty *John Bull*; the Siamese *twins*; the fair fisherwoman with her *balance*; the pensioners swilling like *fishes*; the unlucky wight caught by the *crab*; *Leo* the triple-crowned pontiff; the evergreen *virgin* with her tabby, her poodle and parrot; the *scorpion*, like shrew flying tooth and nail at her easy poor sot of a husband; and the elegant *archer*, full "fat, fair, and forty," taking aim at the bull's eye, are, each and every, sparkling and spirited incentives to laughter. The illustrations of the "seasons" are equal in humour; *spring* appears in the seducing guise of a market-woman bawling "radishes! who'll buy my young radishes;" *summer*, a feminine mountain of flesh, with gypsy-hat, fan, and French cambric, seated sighing away the sultry hours beneath a "green tree;" *autumn* is a cockney sportsman—a genuine Sammy Simple—in regular costume, tremblingly taking aim at an invisible

sparrow ; and *winter*—hoar winter—freezes us in the shape of a withered Billingsgate crone warming her hands over a pan of charcoal which the bellows by her side has assisted to kindle. Are not these capital, good Reader ? Well, pass on, take a peep at the interior. Here is *January*, with the pageant of “the poor frozen-out gardeners,” and their frost-bitten turnips and carrots : there is a “fine body” of street-sweepers on winter duty, collecting the ice ; and there is a knot of helpless little imps performing sundry involuntary evolutions on the slides. Now comes *February*, aqueous February fill-dyke, the sewers are let loose and the chains of the kennel are dissolved ; half-melted ice, black and forbidding, and rivers of water terrify the pedestrian ; there is an old granny, mounted on pattens, with petticoats duly tucked up, perched on a little islet of ice, and staring most piteously at the flood between her and the wished-for *chaussée* where a malicious charity-boy revels in her despair, and a couple of buxom housemaids, with a disconsolate damsel, busy on the missions of Valentine, are on the *qui vive*. There is an agonized poodle floundering in the “slush” and howling to its master in the extremity of its alarm ; and there is the master, a meagre Frenchman, roquelaured, clogged and umbrella-ed, striding aghast over the deceitful ground : there are the ministers of cleanliness ycleped scavengers, flinging up the molten treasures of the Macadamized streets ; and further on the industrious clearers of the roofs have contrived to deposit an avalanche on an unhappy couple below, the cavalier lies prostrate on one knee beneath his umbrella, and the fair one flies with extended arms from the desolation impending over her “last new bonnet.” Bravo ! here is *March* ! rude, rioting, racketty March, whose “bushel of dust is worth a king’s ransom !” the locale of the scene is that corner of Fleet Street where we are so often tempted to pause and feast ourselves on the graphic delicacies at “86 ;” but what an animated picture of distress, and doubt, and dustiness ! as gentlemen we must first glance at the ladies : one, a fair, slender-footed nymph, struggles with her rebellious drapery, while, taking advantage of her embarrassment, Boa and Brussels hie forth on a voyage of discovery ; *vis-a-vis* to the maiden, and threatening an immediate collision, a middle-aged lady in equal perplexity, grasps with one hand the structure of velvet and lace cognomened a bonnet, and a little girl, blown into the shape of a balloon, shares in the rude greeting of March. And now for the gentlemen ; a lusty elderly man, robbed of his hat and wig, in his efforts to protect himself from the blinding whirlwind of dust that is rushing up the court, has thrust an open umbrella right into the chest of an unlucky spindle-shanked wight, who is blown, violently, round the corner ; another, with dress in dire disorder, is flying in chase of his beaver, and a third, a hearty old fellow, in cloak and spectacles, laughing at his neighbour’s pursuit, has wisely presented his back to the hurricane. Nor is the least comic incident that of the spaniel nearly blown topsy-turvy, with its tail turned over its ears by the blast. A mixed assemblage of coaches, horses and foot passengers, labouring in the breeze, fills up the back-ground. And here we have capricious *April*, not clothed in sunshine but, literally, dissolved in tears ! A pelting shower is descending in the appropriate vicinity of “*St. Swithin’s Lane* :” a group of individuals as varied in form and feature as Falstaff’s regiment, have taken shelter from the merciless torrent in the covered-in entrance of *Bath Court* ; there is a skeleton dandy of six feet high, prim and erect as a pike-staff ; and there is the Daniel Lambert, who requires a whole stage to himself when he travels : on the pavement two of the fair sex are wading through the storm ; the foremost short, fat and “elderly,” with the legs of an elephant thrust into a pair of jean boots, cowers beneath a diminutive parasol, and, reckless of splashes, the whole breadth of her sole is planted heroically upon the ground ; her companion, “tall and slender as a poplar tree,” with dripping boa round her neck, and her dark hair dishevelled, for rain be it known is ruinous to ringlets, holds up her muslin robe fastidiously and with an aspect of piteous dismay, treads along most daintily on the tip of her foot, pointing her toe as gracefully as any votary of Almack’s. A porter escaped from the infliction of a shower-bath, and wringing himself like a half-drowned dog, two or three gibing urchins, and the umbrella “depot” of “J. Gingham,” &c. complete the sketch.

“*April* showers bring forth *May* flowers,”

and here they are decking out old “Jack-in-the-green” most gloriously, and

blooming and blushing in the chevelure and chapeau of the king and queen of the month. By the merry faces of the sable rogues, and the joyous grimaces of their Grimaldi, one might fancy that the "chimney sweepers' act" yet slumbered, an embryo, in the brain of the sapient Solomon who framed it, but the text apprizes us that it has been matured and that the revelling of their sable majesties is but the intoxication of despair. A band of shrieking children, boys, men and nursery maids, brings up the procession. And what treat hath *June*—sweet month of roses, nightingales, and twilight skies—what treat hath June in store for us? "Prodigious!" *the Royal Academy!* the walls are covered with the triumphs of native art, and we flatter ourselves with detecting the works of our favourites; there is, surely, a whole length by Sir Martin, and a portrait by Phillips, one by Pickersgill, and another by Rothwell; a mythological by Etty, and a scriptural by Hilton; two landscapes in India by Daniell; a subject from *Comus* by Howard, a sea-shore by Collins, and a passage from Shakespeare, with the head of a fair girl, by Alabaster, that promising pupil of genius: and there are many more which we might identify had we but time. But look at the motley crowd! the woman of ton and her *exquisite* escort; the corpulent clergyman whose right foot has, inadvertently, pulverised the corn of the hapless old lady behind him; the artist, horror-struck on discovering his "wonderful production most wickedly and maliciously" hung on the highest nail in the room; the enormous alderman wiping his face with his handkerchief; the connoisseur bent double to feast on some rare little bit near the ground—in short, Reader, prithee put on thy spectacles if thou wearest such, and make thy bow to the whole;—let us turn to *July*. Oh! this is Vauxhall with its coloured lamps, its green trees, its vocalists and musicians, wafer sandwiches, scaramouch waiters, and harlequin groups; and there is "Simpson the brave," attitudinising in full dress, and as happy as a Parisian coxcomb of *l'ancien régime*. Good! very good! go on. *August* hurries us not amidst the reapers and gleaners and the wide waving harvest of wheat, where the lark has buried her nest in the furrows, and the quail and the partridge and corn-crake have brooded and brought up their young—no—it is "*oyster-day*," and a vision of Billingsgate rises before us; we are jostled amidst cab-men, coal-heavers, porters, bricklayers, and divers of the ruder specimens of the softer sex, all eagerly selling, buying, opening and eating the unfortunate *bivalve*. And lo! there is a dandy, with his belle, in a state of actual oyster-shell siege, blockaded by some dozen ragged, active and clamorous little monkeys, from the age of seven downwards: good luck! And now for *September*! where are we? what have we here? "*Gyngell*," "*Richardson*," booths, dwarfs, giants, posture-masters, and rope-dancers; clown, punch, and pantaloons; the hero and heroine of the sock and buskin; a flying rabble of tailors, washerwomen, and new-breeched little boys, and a mad bull rushing, unceremoniously, onward: the gentle revel of St. Bartholomew has commenced, and we are in the classic region of Smithfield. *October* presents us with the arrival of the stages from *Hastings*, and the surly descent of the worn-out cits who have been "*pleasuring*" at the sea-side,—gulping salt water, and wetting their shoes on the shingles, and are now wending homewards with guinea-less purses, band-boxes of millinery, and mutual discontent. Well! all things must have an end, even a trip to the coast, and the cash in our pocket. *November*—chill and dark—ushers in the funeral procession of the "Papist plotter, Guy," and the incident of the urchin, pulled back by his wiser companion, yet sanguinely holding up his cap to the suicidal-looking personage in the barred window of the sponging-house, is excellent: look at the queer little rogue too, with an ocean of shirt collar, and handsomely dressed in the nether habiliments of some broad-shouldered Irishman! what can be better? Oh! *this*, most certainly, the feast of *December*; the social, happy, cheery dinner-party in their pleasant, warm, well-lighted room, with the sparkling and savoury condiments before them,—the turkey, chine, hare, wine, jellies and mince-pies; the pudding and roast beef, and all good things in possession and expectancy; jests and gibes and broad grins; quips and cranks, smiles, simpers, blushes, and soft flatteries—all that is joyous, tender and amiable, animates the scene,—even the servants are mollified, and John oglingly whispers a sly compliment to Betty as she hands him the tart. This is a capital termination, and so we leave it.

Of the etchings we must say, that while the designs exhibit much of the graphic humour of the master, the *execution* is less vigorous than might be desired; a *too*

delicate corrosion of the metal has impaired the effect, and we are, immediately, struck by a want of fulness of colour in the plates. We are, decidedly, of opinion that sharp, beautiful and spirited engravings on wood would have more favourably brought out the designs. The minor *morceaux* "by other hands," are not without merit; and the literary portion is ludicrous, particularly the burlesque on the "*Brutish College of Health*."

"*Illustrations of the Bible*." London, Edward Churton, Holles Street. Parts VII., VIII., IX.

Increasing in merit and attraction, this beautiful little series continues to present new claims to our admiration; the present numbers are among the best we have seen, and we shall give some *detailed* remarks on the prints in our next.

"*View of Aracan Fort, from Pioneer Hill*." Havell, Zoological Gallery, Oxford Street.

A well-executed coloured engraving of the Fort of Aracan, which was captured, after a severe struggle, during the Burmese War, by the British and Native forces, under the command of Brigadier General Morrison, and subsequently dismantled. The bamboo barracks on the parade were occupied by the troops. On the extreme left is the house of the governor; in the rear of the position is the village, which extends to the river, flanked on both sides by mosques.

This fort was built originally by the Portuguese, from whom it was wrested by the Burmese, who retained possession of it near five centuries. The position occupies a large extent of ground; one face entirely commands the river, and was deemed by the Burmese of great importance, being considered the key to the seat of government, at Ava, with a good anchorage for a fleet, and within a few days sail of Bengal. From the time of the capture until the withdrawal of the troops, a space of eight months, upwards of 4000 men fell a sacrifice to the climate, which, in consequence of its destructive tendency to human life, has given to this district the appropriate designation of "The Valley of Death."

THE MINIATURE.

BY J. ALFRED LAW.

It is the hour I love to gaze
 Upon this beauteous work of art;
 Whilst long departed, sacred days,
 In silence steal over my heart.
 The brightest hope man ever had—
 The deepest truth of woman's breast;
 The joy which makes the eye look glad—
 The happiness by love caress'd.
 Such wert thou unto me—and now,
 The wild grass waves above thy head;
 Those beaming eyes, that polished brow,
 Deep in their parent earth are laid.
 No stone is raised to mark the spot,
 Nor record left to tell the same;
 The few who knew thee once, "are not,"
 Save *one*, who never breathes thy name.
 In this dim hour, when daylight dies,
 Come thoughts of thee which cannot die;
 And tears, as now, are felt to rise,
 In tribute to thy memory.

CRITICAL NOTICES OF NEW PUBLICATIONS.

Memoirs of Ichthyosauri and Plesiosauri, extinct Monsters of the Ancient Earth, by Thomas Hawkins, F. G. S., &c. &c. London: Relfe and Fletcher, 1834.

Had not Mr. Hawkins confessed himself conscious of his own defects, and appeared before us as his own humble apologist, we should have been more inclined to quarrel with the manner in which he has thought fit to conceal a few important scientific facts amidst a mass of silly speculations and unmeaning verbosity. But let our author speak for himself. He says in his preface—"The Geological Society of London was the remote cause of the Book I now commend to my reader's indulgence, and since I am by no means sanguine of his praise, I must acquaint him with the disadvantages under which it was written, that if it should unfortunately incur his censure, he may know how to qualify it at the least, if not to forego its expression altogether."

After telling us that his education was neglected, and that he was left to the unrestrained indulgence of a collecting mania from the age of twelve, he proceeds—"therefore, the volume now before the reader has but modest claims,—indeed, the title anticipates it—memoir signifying a familiar exposition of one's own ideas in a latitudinarian degree,—and is sufficiently descriptive of the thing proposed—the assemblage of facts relative to Ichthyosauri and Plesiosauri, merely. To this end I had but to study their remains as an anatomist, and, if I may boast, that branch of science has not been neglected by me, and to watch vigilantly the progress of my plates, which are, after all that is said, the best interpreters of the original matter, if carefully examined. But the determination of the most remarkable individual difference, by which the species should be known, devolved upon me—a serious responsibility as the genera had their historians; but having ascertained their consent to my views upon the subject, for Messrs. Conybeare and De la Beche published their's during the infancy of our acquaintance with these extraordinary creatures, I at once referred it to the extremities.

"Naturalists wonder, if they bear not in mind the peculiar difficulties that encounter the sauriologist when he grapples subjects of this kind. The object—excessively rare—comes before him divested of the properties of living animals; he sees but the osseous relics of beings that, without analogue in the present creation, set all common methods of reason at defiance, and leave him no choice but the exercise of opinion or its abnegation. Now, mark the consequences of the latter postulate; the question sent a begging returns with a Babel of answers, and is consigned, with the good and bad company it has picked up, to oblivion, while the mover of it, tacking the name of one of his friends to the generic appellation, lays the flattering unction to his own and another's soul at the same moment that he betrays science. Thus, the records of extinguished times and things are interpolated with the most fleeting accidents of our own,—in the same spirit is ignorant Monks painted on its missal the Jewish virgin in the habit of a nun, and the disciples shaven and hooded like itself. So critical a dilemma must plead for my temerity, and I trust my reader will believe that I should be the very first to forego for better distinctions the poor credit of my own, which I will, nevertheless, vindicate until such be substantiated.

"Further, I beg the reader to bear in mind that I am no adept author; confined, like the Abyssinian prince, to a world of my own making, for I have enjoyed neither the privilege of a Mentor nor leisure necessary to the acquirement of much worldly wisdom, being engaged from my earliest years in the gratification of an inordinate acquisitive organ which understood no motive but curiosity—I speak only the language of the heart. It will offend a fastidious taste; it may even militate against some of the conventional forms which the literary world has agreed to respect, but it bears the impress of truth, and be that the honourable badge of my first solicitude—my sacred care. I make no apologies by way of mask, no more professions than I fulfil;—that my explanations extenuate such *mediocre* as may chance in my pages, I am excusably solicitous; that I acquire the good opinion of my readers, anxious; these are the simple aspirations of my ambition, and the latter the only honour that I covet for reward."

Taking the anterior extremity of the Ichthyosaurus and the posterior extremity of the Plesiosaurus as the bases on which to found a new arrangement of species, he explains himself thus. Speaking of the Ichthyosauri. "Rejecting the old specific terms, as of too indefinite pretension, and comparing the numerous specimens in our collection with one another, we ascertain that the most unique feature of the Ichthyosaurus—the paddle—furnishes the best ground for the true identification of the species which we enumerate:—

1. Ichthyosaurus Chirologostinus, from *χειρ*, hand; *ολιγος*, few; and *οστειον*, bone.
2. I——— Chiropolyostinus, from *χειρ*, hand; *πολυς*, many; and *οστειον*, bone.
3. I——— Chirostrongulostinus, from *χειρ*, hand; *στρογγυλος*, round; and *οστειον*, bone.
4. I——— Chiroparamekostinus, from *χειρ*, hand; *παραμηνης*, oblong; and *οστειον*, bone."

Speaking of the Plesiosauri, he says—"It is not in the relative characters of a few dislocated bones of an extinct family that we look for the differences that identify species, but in some great deviation from the general rule as betrayed in the teeth of quadrupeds and in the limbs of oviparous reptiles: here, in the posterior extremity—in the tarsus—it is discovered. We establish from species, therefore—the same number that belongs to the fish-lizard genus—the

1. Plesiosaurus Triatarsostinus, from *τρια*, three; *ταρσος*, tarsus; and *οστειον*, bone.
2. P——— Tessarestarsostinus, from *τεσσαρεις*, four; *ταρσος*, tarsus; and *οστειον*, bone.
3. P——— Pentatarsostinus, from *πεντε*, five; *ταρσος*, tarsus; and *οστειον*, bone.
4. P——— Extarsostinus, from *εξ*, six; *ταρσος*, tarsus; and *οστειον*, bone."

We beg to offer our meed of approbation to the getting up of the plates, and our sincere admiration of Mr. Hawkins's indefatigable industry and enthusiasm; but we hope when he again lays before us their results, he will remember that accuracy of facts and simplicity of diction are the *το ωρεπον* and *το καλον* of books of science.

We finish with a choice specimen of our author's manner. "There is an oasis in the North of our Isle which has a temple—like the Ephesian—beautiful, high-priests venerable, and sons rich in the wisdom that cures the maladies of the soul. The northern town Scarbro'—the second Bath—has founded this building—modelled after the temple of Theseus, at Athens—and directed the public energies to the cause of

natural philosophy, of which it is the worthy store-house. If my reader has taken the palmer habit that he may travel to the heavenly countries of Phanes, Zeus, and Eros, let him visit that classic place and pay his vows at its Theseuian altars—one of them is a fragment of the *fifth* Plesiosaurus and the Goliath of the race. I went seven hundred miles to see it—worshipped it—and purpose it yet another pilgrimage.”

Travels into Bokhara; being the account of a Journey from India to Caboul, Tartary, and Persia; also *Narrative of a Voyage on the Indus from the Sea to Lahore, &c.* in the years 1831, 1832, and 1833. By Lieut. A. Burnes, F.R.S. 3 vols. 8vo. with plates. London, 1834.

Whatever may be the disadvantages of the system, which has ruled our Eastern colonies from their first establishment down to the present day, it may reasonably be doubted whether the changes, which have been made of late years, could have been brought about in the year 1783, when they were first suggested, without endangering that moral influence, which has alone enabled the British nation to extend her empire over a tract of country, almost without bounds, and over tribes inimical not only to her, but to every other people. The extraordinary and exclusive nature of the superstitions, customs, habits, and language of the East, required a peculiar mode of Government: one, wholly different from any thing with which its conquerors were previously acquainted. Perhaps, indeed, those very evils (and evils they undoubtedly were in principle) which Mr. Fox's opponents were accused of promoting, for party purposes only, were, what mainly contributed to fix the British dominion in Hindostan upon its present firm basis.

The East India Company have been stigmatized as despots, and of the worst kind; as tyrannizing over the mind as well as the body. Granted.—But what would have been the consequence of at once bestowing a liberal constitution, and a free press upon those, to whom the very name of liberty was unknown.

They have been upbraided with condemning the half caste population to a state of inferiority, *which it did not deserve*. How far this accusation is true, it is not for us to decide. But in a country where the separation of caste is (if we may use the expression) indigenous, and where the intermarriage with one of an inferior grade is viewed with feelings almost amounting to horror, the conquerors could have devised no more effectual means of establishing their authority than by discountenancing, to the utmost of their power, all connection, immediate or mediate, with the conquered. This caused them to be regarded as of a superior caste; and, by thus complying with the prejudices of the vanquished, they acquired a moral influence over them, which, years of bloodshed, and the slaughter of thousands, could never have procured.

Much too has been said of the lavish prodigality of the Indian Government; and the charge is not denied. The rigid economy which is so necessary to the well-being and happiness of a free nation, would be viewed with astonishment—nay—even with contempt, by those with whom the magnificence of their native princes is the ordinary criterion, and frequently the sole stay of their power. Time, and the progress of civilization, have already brought about many changes; and the day is probably not far distant, when the very measures of reform which have been hitherto stigmatized as chimerical and dangerous, may become absolutely necessary for the preservation of our Eastern territory. But to return to our subject. The head and front of the offence seems to be,

that the Directors of the East India Company were an irresponsible body, independent of, and almost wholly unconnected with, the Government of the mother country. Here again the peculiar circumstances of the case, not only neutralized the greater portion of the evils which might be naturally expected in such a system, but in many instances converted them into positive advantages. To say nothing of the extraordinary secrecy and dispatch which they thus ensured in all their undertakings; the very circumstance of their having no family nor political connexions to court, no parliamentary majorities to seek, enabled them to select as agents of their power, men recommended solely by their talents and efficiency. It is under such a system as this that have flourished a Malcolm, an Elphinstone, and many others whose names are recorded in the annals of Eastern history with gratitude and admiration.

And, to go no further than the work before us, we have in their author a remarkable instance of the position we have just advanced. Lieut. Alexander Burnes, a soldier of fortune, recommended solely by the talents he had displayed in some inferior diplomatic situations, was nominated by the Governor-General for two of the most important missions which have ever been entrusted to an individual. And well and faithfully has he executed the task imposed upon him.

The present volumes are of themselves sufficient evidence that the author possesses considerable intelligence, observation, and perseverance; but they no less prove that his education and habits fit him rather for leading an expedition than compiling a narrative.

They certainly contain an immense mass of information relating to countries hitherto almost unknown; but there is an unconnectedness and want of arrangement throughout, which take away greatly from the interest they would otherwise inspire, and render an analysis of them almost impracticable. At the same time, wherever this want of connection occurs, and (we regret to say) it is only too frequent, we are disposed to think that it arises from the omission of some passage containing political or other observations which it might have been inexpedient to publish; and we, therefore, view it more mildly than we otherwise should have done. Nor is this all.—In defiance, as it were, of all system whatever, our author has chosen to invert the chronological order of his proceedings, and has given to his more recent journey into Bokhara priority over his voyage up the Indus. The reason which he assigns is, that the former possesses greater interest; we doubt, however, whether his readers will be of the same opinion. With all these defects, however (and they are defects solely of style), Lieutenant Burnes's work will be found invaluable as a book of reference upon every thing connected with the countries he has visited. He has seen much, and observed more, and his narratives bear a stamp of truth rarely to be met with in any work connected with regions so fraught with mystery and fable as those through which he has travelled.

In the short notice which follows, we shall treat of the two expeditions in the order in which they were undertaken, in preference to that in which our traveller has chosen to describe them, and we recommend his readers to follow the same plan.

In the year 1830, Mr. Burnes, then political agent in Cutch, was sent on a mission to Lahore, with a present of five large spotted horses from the King of England to Maharaja Runjeet Sing, the Sovereign of the Seik nation. He was accompanied by Ensign Leckie, a surveyor, a native doctor, and their servants. They set off from Cutch in five native boats, and after meeting with considerable difficulties in their attempts to proceed up the western branch of the Indus, they found themselves

forced to abandon their original intention, and, accordingly, on the 12th of April (two months from the day of their departure from Cutch) they embarked in six doondees, or flat-bottomed vessels of Sinde, on the Wanyanee, another branch of the same river. Here our travellers witnessed the fishing of the pulla, a species of carp.

"The mode of catching this fish," says our author, "is ingenious, and peculiar, I believe, to the Indus. Each fisherman is provided with a large earthen jar, open at the top, and somewhat flat. On this he places himself, and lying on it horizontally, launches into the stream, swimming or pushing forward like a frog, and guiding himself with his hands. When he has reached the middle of the river, where the current is strongest, he darts his net directly under him, and sails down with the stream. The net consists of a pouch attached to a pole, which he shoots on meeting his game; he then draws it up, spears it, and putting it into the vessel on which he floats, prosecutes his occupation. There are some vessels of small dimensions, without any orifice, and on these the fishermen sail down, in a sitting posture."

We confess we do not quite understand Mr. Burnes's description; perhaps some of our readers may be more successful.

At Mittum, our travellers left the Indus, and entered the Chenaub (the Acesines of the Greeks), and, shortly after, arrived in the territory of Bhawal Khan—the capital of which is Ooch, a poor place, with a population of about 20,000. At a short distance from Ooch they were met by an envoy from the chief of the Seiks, who announced that a considerable body of infantry and cavalry would be in constant readiness to attend the mission to the end of their journey. They were welcomed with presents, both in provisions and money, at every halting place upon the road, and at Mooltan all these were doubled. At length, on the 17th of July, they came in sight of the lofty Minarets of the King's Mosque at Lahore. They were here met by the British resident at Lodiana, and Dr. Murray, with a large escort of troops, and they were shortly after joined by Mr. Allard, a Frenchman, who commanded the Royal cavalry, and the whole party entered the "palace gate" of Lahore through two lines of troops drawn up to honor their arrival. Nothing could exceed the kindness of their reception by the Maharaja. "A peal of artillery from 60 guns announced to the citizens of Lahore the joy of their King." He seemed greatly delighted with the horses which had been sent; he called them little elephants* (an unfortunate expression, by the bye, when we recollect who was the President of the Board of Control at the time.) His reply to the letter of the King is a fine specimen of Oriental hyperbole:—

"By the favour of Sri Akal Poorukh Jee, there are in my stables valuable and high-bred horses from the different districts of Hindoostan, from Turkistan, and Persia; but none of them will bear comparison with those presented to me by the King through your Excellency—for these animals, in beauty, stature, and disposition, surpass the horses of every city and every country in the world. On beholding their shoes, *the new moon turned pale with envy and nearly disappeared from the sky*. Such horses the eye of the sun has never before beheld in his course through the universe. Unable to bestow upon them in writing the praises that they merit, I am compelled to throw the reins on the neck of the steed of description and relinquish the pursuit."

Mr. Burnes and his party remained at Lahore until the 16th of August; and after taking leave of the chieftain, by whom they had been so hospitably entertained, proceeded towards Semla, where Lord William Bentinck was then staying, to give an account of the success of their mission.

* Lord Ellenborough, whose extraordinary application of the terms "wild and tame elephant" created so great a sensation a few years back.

The Governor-General expressed "his entire and unqualified approbation" of Mr. Burnes's conduct, and declared his intention of entering into immediate negociations for opening the waters of the Indus to British commerce.

This river, it would seem, is navigable to a distance of nearly 1000 miles from the sea, and has seldom less than 15 feet of water, even in the dryest seasons. The chief danger seems to be at its mouth; when the tides ebb and flow with considerable violence at the time of the full moon. Our traveller, therefore, recommends that the steam boats intended to sail upon its bosom should be built without keels, to diminish the risk of grounding. Mooltan (the capital of the Molli of Alexander, at least so says our author) might thus be reached in 20 days, instead of 40, which is the time now required; and a new field thereby opened for the increase of British industry, in climes where the very name of Englishman is even now almost unknown.

The actual territories of the Maharaja comprise the whole of the Punjab: and so entirely, says Mr. Burnes, has he altered the constitution of the Seik nation, that he has succeeded in converting into an absolute monarchy that which was originally a pure republic.—But his power can hardly be expected to last beyond his own reign.

"He has a disciplined army of infantry, with a due proportion of cavalry and artillery. The system is unpopular, and the Seik Sirdars view with distrust the innovation and the innovators. The French officers, when deprived of their patron, would find it necessary to stand aloof, from motives of personal safety; and if they left the country the wreck of their labours would perish in the general tumult." Vol. iii. p. 296.

We must here bid adieu to Lieut. Burnes for the present; in a following number we will conclude our notice by a short sketch of the first and second volumes, containing the narrative of his journey into Bokhara.

The History of Evesham, its Benedictine Monastery, Conventual Church, existing Edifices, Municipal Institutions, Parliamentary Occurrences, Civil and Military Events. By George May. May, Evesham; and Whittaker and Co. London, 1834.

This work has been on our reviewing list for some weeks, but literary matter, long in our possession, which would admit of no further procrastination, has so fully occupied our pages, that we have been hitherto unable to direct the necessary attention either to this publication or to others of no less local interest.

Literary eminence is not attained by a *coup-de-main*—it is the result only of assiduous and untiring application, of severe study, of a correct taste, of apt discrimination, of a sound judgment, of an inventive imagination, and of a mind totally abstracted from the petty scenes and annoyances of life. In the race of literary fame, numerous as are the competitors, how few reach the desired goal! If all aspirants for lettered distinction, however, do not attain the point of eminence for which they strive—there are many who are satisfied with such knowledge as may render them useful—and to be *useful* is no slight distinction either in letters or in the arts. Of this description of writers is the author of "The History of Evesham." He has evidently, at considerable pains and with much unwearied assiduity, sought and obtained for his subject all the information practicable, from the most authentic sources, and has very skilfully woven his materials into an interesting local history.

It will scarcely be credited, but such is the fact, that no history, not even a guide of the meanest description, of this interesting portion of

the county of Worcester, has been published within the last fourteen years. For want of such publications, how much local intelligence of interest to the antiquary and inquisitive examiner is hidden from observation. It is true that in most counties there are historical records on a large scale, but from their bulkiness and price they are usually out of the reach of the common reader. This "History" well and fully supplies the object required; it is sufficiently minute, without being prolix, embraces all necessary information, and in every point of view must be considered a valuable addition to the chronicles of that part of the county.

To make extracts from this work will scarcely be necessary. Those persons to whom the publication will be valuable, will not require a detached portion for their perusal, and to the uninterested reader it would be useless. It has been the writer's aim, he observes, to weave in one continuous chain an *authenticated* history of events pertaining to his subject—and in this laudable attempt we must allow that he has fully succeeded.

Amongst the author's introductory observations, there is the following sentence, which we extract for its novelty:—

"In continuation of his acknowledgments for the assistance he has received, the author takes occasion to observe, that, toward such *chartered* antiquaries, resident within the county, as he has had occasion to apply, he has *no* load of obligation to bear: with the exception of Sir Thomas Phillipps, Bart., F. S. A., whose readiness in affording facility of reference to certain valuable works in his extensive library at Middle-Hill, the author would duly acknowledge."

This charge, we trust, has been made hastily, or under some unfavourable impression which the writer had unthinkingly imbibed. There are few gentlemen in this or any other enlightened county, we are willing to believe, who would wilfully throw obstacles in the way of an attempt to perpetuate a faithful record of the civil institutions and remarkable events of the county, in which, as residents, they must naturally feel a deep and solicitous interest. For ourselves, we are bound in honour to declare that in no single instance where inquiry was necessary to elucidate or adorn any subject, on making application to the proper quarter, did we ever meet with other than the most prompt, polite, and gentlemanly acquiescence—and not only acquiescence, but in many cases the most courteous and valuable personal assistance. If Mr. May, however, actually did meet with those obstructions in his researches, at which he hints, and we are of course bound to rely on his statement, he may rest assured that there was either some informality in his mode of proceeding, or some mistake in the supposed purport of his inquiry.

It must be confessed that this is not an elaborate work—its great claim to notice is its incontestible usefulness. Even in such a production, however, we would recommend to the diligent and able compiler, a careful revision of its pages, for we have detected errors in the construction of some of the sentences, which slightly mar their consecutive fitness. We are aware that it is only necessary to point out this defect to see it duly rectified in a second edition.

There are two well executed plates of the Evesham Parochial Churches and Abbey Tower, and of the Bell Tower of Evesham Abbey, from sketches made by the author, and engraved by J. C. Varrall.—The list of subscribers, which is appended to the work, we are gratified to observe, is numerous and respectable.

CRITICAL NOTICE—FOREIGN.

Collection Iconographique et Historique des Chenilles, ou Description et Figures des Chenilles d'Europe. Avec l'Histoire de leurs Métamorphoses, et des Applications à l'Agriculture. Par MM. Boisduval, Rambur, et Graslin. 8vo. Paris, 1832.

With the exception of the antiquated and curious work of Madame Merian,* we recollect the existence of no publication exhibiting even the pretensions to the character of a complete Monograph on the Caterpillars. Many of the British and continental writers upon insects have, we are well aware, cursorily adverted to, or partially and imperfectly illustrated, the subject. Not one of them, however, has yet been inspired by the noble ambition of grasping with a master-hand, this most instructive and important but neglected branch of entomological science, and treating it in the minute, luminous, and comprehensive manner of which it is alike susceptible and pre-eminently deserving.

Among the foreign publications upon the European *Lepidoptera*, those of Réaumur, Degeer, Ernst, Esper, and Roesel exhibit, here and there, figures of the caterpillars; but they are, for the most part, unfavourable specimens of the iconographic art, even at the period of their execution,—generally coarse, and sometimes contemptible. By another artist, the lamented Hubner, a numerous collection of the caterpillars of Europe has, indeed, been published. The text, however, is wanting; and, while many of the figures are excellent, others, from their inaccuracy, are completely worthless. This sad failure may probably be traced to the fact of Hubner having sometimes drawn his figures from *inflated* specimens, or servilely copied them from the faulty productions of preceding authors.

Donovan and Curtis, in their respective works on British Entomology, have frequently appended to the figures of the *Lepidoptera*, correct and even splendid drawings of the Caterpillar. In proof of this assertion, we confidently refer the reader to that engraving of the third volume of the *Natural History of British Insects*, in which the various states of the beautiful *Papilio Antiopa*, are depicted; and to the first, in the fourth of *British Entomology*, exhibiting representations of the *Acherontia Atropos* and its magnificent caterpillar. But the volumes of Donovan unfortunately contain not a tenth part of even the British *Lepidoptera*; and the exquisite work of Mr. Curtis is a book of genera only, not of species. Again, the minute and generally correct descriptions of the Caterpillars, which exist in the productions of Haworth†, Stephens, and Rennie, are not illustrated by engravings.

Impressed with a conviction of the necessity and importance of a work which may enable the student of entomology to recognize the numerous species of caterpillar everywhere met with, and instruct the agriculturist

* *Erucarum Ortus, Alimentum et Paradoxa Metamorphosis, &c.* Per Mariam Sibillam Merian. Amstelædami, 4to. No date.

† *Lepidoptera Britannica*, 8vo. Londini, 1803—1828; *Illustrations of British Entomology*, 8vo. London, 1828;—*Conspectus of the Butterflies and Moths found in Britain*, 12mo. London, 1832. Mr. Stephens has availed himself, with admirable effect, of his profound knowledge of the Caterpillars, in the construction and arrangement of the genera, and discrimination of obscurely marked species of Lepidopterous insects. The term *Caterpillar*, we may observe, is exclusively restricted to the larva of the *Lepidoptera*.

in the preservation of his property from the ravages of the more destructive and rapacious kinds, the authors of the present interesting *Collection of European Caterpillars*, have long been accumulating materials for their arduous enterprize. Not only have they procured from different parts of Europe, original drawings, of extreme accuracy; but they have employed an accomplished artist to make sketches of the caterpillars received or collected, by themselves, in a living state. Such an undertaking is obviously encompassed by many difficulties, which are not encountered in the execution of a work on the perfect *Lepidoptera*: for a collection of the caterpillars is generally little more than an assemblage of mis-shapen bodies and desiccated skins, retaining little or no vestige of their original form and character.

Divers methods have been employed to remedy this evil; yet none of them has, at present, been productive of any satisfactory result. Some Naturalists, after having squeezed out the intestines and sub-cutaneous tissue through the posterior extremity of the caterpillar, inflate the remaining skin with air. Such a process, however, has the effect of imparting to the specimen an unnatural figure. The rings of the body become distended, and more prominent than in a state of nature. The colours are not preserved: those which were originally green, assume a dead leaf hue; and the hairy species lose their covering. In the preservation of these latter, another method is sometimes had recourse to: the abdomen is opened, and stuffed with cotton, in the ordinary way of preserving birds and quadrupeds. This mode is attended with less deformity, and loss or variation of colour, than the preceding. Again, it has been attempted to preserve caterpillars, like the *Annelides*, in spirits of wine. In this way, if the colours fade, the animal still, in some degree, retains its pristine form and distinctive characters. Lastly, some persons employ the art of modelling in wax. This, by far the most eligible process, is, however, only applicable to the smooth caterpillars. It may also, be remarked, that wax is promptly discoloured by the action of light; and that the models which were originally deep-green, assume, after a certain time, a pale-green hue. Such, unfortunately, are the difficulties and discouragements with which a collection and delineation of the caterpillars are encompassed: while the *Lepidoptera*, if preserved with ordinary care, retain their characters, and their colouring in all its pristine freshness, during a long succession of years.

That these difficulties, however, are not insuperable, an examination of the exquisite and admirable collection by which the preceding observations have been elicited, will suffice to prove.

It was long a question with the authors whether they should, in the execution of their work, publish the description of the whole of the Caterpillars, belonging to one tribe or family of the *Lepidoptera*, in unbroken succession, or exhibit them in small interrupted series. After much deliberation, they, at length, decided, with evident propriety, upon the adoption of the latter plan: since, as all the figures are copied from nature, it would have been obviously impossible for them, even with the stock of materials already accumulated, to present the whole of the Caterpillars of one tribe, amounting, in some instances, to upwards of two hundred species, in regular succession.

In conformity with this arrangement, the work is published by *plates*, and not by *series*: care, however, has been taken that each plate shall exhibit only species of the same genus or tribe; and that the plates illustrative of each tribe, shall be separately numbered. Thus, we have *Sphingidæ*, pl. I, II, III, *Pseudo-Bombycidæ* I, II, and so forth: and, as one entire leaf is devoted to the description of each subject of each

plate, and as the text is not paged, the whole may be readily arranged at the conclusion of the work, according to the peculiar views of the possessor, or in the order of any entomological system which he may have been led to adopt.

Each caterpillar is figured at the adult age, with the plant upon which it feeds; but its appearance at different ages will, as often as practicable, be described in the text. The most remarkable varieties of each species are also represented; and a drawing, of the nymph or chrysalis, added. In the accompanying text, the process and period of metamorphosis of each species is, moreover, indicated; and the time of its existence in the chrysalid state.

In the plates of those Caterpillars which spin a cocoon, the figure of this curious and admirable production of "insect architecture" is frequently introduced; as often, at least, as it exhibits any striking peculiarity of form or character. Thus, if the cocoon of the *Dicranura* (*Cerura*) *vinula* have been represented, those of *D. furcula* and *erminea* will be omitted: and to the drawing of the cocoon of *Bombyx* (*Lasiocampa*) *quercus*, it will be unnecessary to subjoin that of the corresponding state of *B. lanestris* and *catax*; since all the cocoons display the same figure as those of their congeners. The same principle is generally followed in the delineation of the chrysalis.

With the figures of the numerous Caterpillars, which are *polyphagous*, or feed upon many different plants, that plant upon which the animal is most commonly found, will be selected for delineation. Thus the caterpillar of the *Bombyx quercus* is represented on the leaves of a briar; and that of the *Orgyia fascelina* upon the *Spartium scoparium*.

In the prospectus of this most interesting and valuable work, it was stated by the authors, that one number (*livraison*) containing three plates, and the letter-press descriptive of them, would appear every month. The number of distinct species of European Caterpillars, requiring delineation, would, they calculated, be about nine hundred: and as they proposed to give, upon the average, five species of caterpillar in each plate, the whole work would be completed, according to the ordinary rules of arithmetic, in sixty numbers, and in five years from its commencement. But the professions of literary men, like the promises of newly-fledged statesmen and embryo senators, should be invariably received with suspicion: as they are too commonly fallacious in exact proportion to the loudness and confidence with which they are advanced. In the present instance, the justice of this censure is conspicuously exemplified: after a lapse of almost three years, we have received twenty-eight numbers of the *Iconographic Collection of European Caterpillars*; and, in the first twelve numbers, seventy-six species, instead of one hundred and eighty, have only been delineated. At this rate of progress, the work will obviously require, for its completion, at least fifteen years, and one hundred and forty-four such numbers as these, which are now lying before us. The price of each number is three francs in Paris.

Having thus succinctly exposed the origin, pretensions, and plan of this remarkable publication, we have now only to speak of the execution of the plates, and of the accompanying descriptions. The former, like the *Scottish Cryptogamic Plants* of Greville, the *British Insects* of Curtis, and the *European Birds* of Gould, are unrivalled in their peculiar department. The drawing is correct; the character of the subject admirably preserved; the colouring delicate, rich, but true to nature. The animal, in many instances, looks as if it were starting from the paper, and actually feeding or crawling before our eyes. The delineations of the accompanying plants, although less highly-finished and elaborate, are almost

equally accurate and excellent. Of the merits of the descriptive portion of the work, the following extracts, in the selection of which we have been guided by the elegance or notoriety of the Caterpillars which constitute their subjects, will enable the reader to judge for himself. They belong to the 1st Plate of the *Sphingides*, and the 1st of the "*Pseudo-Bombycines*" of the work.

"DEILEPHILA EUPHORBÆ."

"This Caterpillar is very beautiful. The ground-colour is black, with yellow points very thickly set. Upon each side, are observed two longitudinal rows of round spots, sometimes reddish, sometimes yellow or white. There is a longitudinal red streak on the back; and a similar one on each side above the legs; but the latter is frequently intersected with yellow. The head, the last ring (of the body), and the base of the horn, are deep-red; as are also, the legs. The horn is scabrous, curved posteriorly, and black at the extremity. In early age, the longitudinal lines are yellow."

"The Chrysalis is of a greyish-brown colour, with the articulations more bright, and the stigmata blackish."

"This Caterpillar is rather common. It feeds upon several species of *Euphorbia* or Spurge; but prefers the *E. Gerardiana*, *cyprisias*, *esula*, and *exigua*. At the sea-side, it is frequently found upon *E. paralias*. It is very voracious, and grows rapidly. Sandy plains, the borders of roads and paths, and all situations in which the *Euphorbiæ* are common, constitute its favorite habitation. It is first found about the close of June: its metamorphosis takes place at the end of July; and the perfect insect appears about August or September, in the South, and sometimes even in the vicinity of Paris, if the weather be favorable. Hence caterpillars are found in the months of September and October. The individuals, which pass the winter in the chrysalid state, come out in June of the ensuing year. It sometimes happens that the chrysalid condition is prolonged for two years."

The species to which this splendid chrysalis belongs, is the *Sphinx Euphorbiæ*, of Linnæus; and *Sphinx du tithymale*, of Godart. An exquisite drawing of the caterpillar may be seen in the third plate of the first volume of Curtis' *British Entomology*; but no detailed description* of the animal is given by that profound and accomplished naturalist. The deficiency is, however, supplied, with tolerable correctness, at page 125 of Stephens' valuable *Illustrations, Haustellata*, vol. i.

"DICRANURA VINULA."

"Like all the Caterpillars of the genus *Dicranura*, the present is rendered very remarkable by two fistulous tails, from which, at the will of the animal, two highly flexible tentacula are protruded. These tentacula, we may add, are of a crimson colour, and have, when exerted, an incessant writhing or vibratory motion."

"In early age, the body is everywhere of a blackish colour; but, after the first change of skin, it becomes apple-green, and sometimes whitish-green with a few remotely scattered black points. From the third ring, which is slightly prominent, the back exhibits a kind of lozenge-shaped mantle, which is prolonged to the origin of the tails, and descends rather low upon the sides, yet always at a certain distance from the membranous legs. This mantle is almost invariably connected by its anterior extremity, with a triangular spot of the same colour. The head is brown-black; and retractile, at the will of the animal, within the first ring which exhibits a square form, and deep-crimson colour. It is, moreover, marked with two black spots. The tail is intersected with whitish and black; and embraces another small forked tail completely black. Frequently at the base of the second pair of membranous legs, there exists a purple lunule, marked with yellow, above."

* At least in the first edition of his invaluable work. A second edition of the letter-press, *descriptive of the species*, was commenced a few years ago; but unfortunately, did not meet with sufficient encouragement to justify its continuance. This is much to be lamented; as accurate descriptions of the various species of the genera of insects, so admirably illustrated by Mr. Curtis, were alone wanting to render the *British Entomology* as perfect in its kind, as it is correct and beautiful in execution.

"This caterpillar is found, from June to the beginning of September, upon the different species of the poplar, and willow genus. On attainment of the full size, it spins an exceedingly hard and gummy case, covered with minute chips, or morsels of lichen, and strongly adherent to the body upon which it is fixed."

"The chrysalis is of a shortened conico-cylindrical figure, and blackish-brown colour. The perfect insect is disclosed from the middle of April to the end of May."

The very common Lepidopter, produced by this extraordinary caterpillar, is the *Bombyx vinula*, of Linnæus and Godart; *Harpya vinula*, of Ochsenheimer; la *Queue fourchue*, of Ernst; *Cerura vinula*, of Curtis and of Stephens; and *Puss-moth*, of vulgar entomologists. The reader may compare the preceding description of the French naturalists, with that appended to plate LXXXV, in the 3rd volume of Donovan's pleasing work. Professor Rennie's sketch, exhibited at page 33 of his *Conspectus of Butterflies*, is very vague and unsatisfactory.

As the exquisite work, upon which we have long been feasting, with all the avidity and zest of the epicure of ancient Rome for his celebrated *Cossus*,* is probably destined to fall under the notice of comparatively few readers of "THE ANALYST," we have been strongly tempted to present another sketch,—that of the *Bombyx quercus*, and its compact and beautiful cocoon,—from the Family of the "*Bombycines*." Prudence, however, warns us to desist. Caterpillars, although affording an admirable and most nutritious food to organs of intellectual digestion in a sound and vigorous state, will readily cloy the delicate and fastidious stomach. Our object is to stimulate, not pall, the appetite for knowledge;—to produce craving and not satiety. Should the specimens, however, already given, excite, in the student of entomological science, any desire for further supply of the like substantial fare, we may, probably, be induced to present an occasional dish of European caterpillars, dressed up in our plain old English fashion; and rendered, mayhap, somewhat more grateful to the English palate, by the judicious admixture of a few spices of criticism, and a small sprinkling of the pure spirit of observation, with and upon the various articles destined for his repast.

To the description of each caterpillar are prefixed an extensive Synonymy; and copious references to the works of the various authors by whom the animal has been figured or described. The collection, moreover, will be ultimately enriched by "general considerations and anatomical details" on the subject of caterpillars. In these, the best mode of procuring, and rearing the different species, will be explained; and an outline of the generic characters, by which they may be distinguished and arranged, will be carefully traced. Finally, full directions will be given to the agriculturist, for the discrimination and destruction of noxious caterpillars. The execution of this important pledge will, we apprehend, be deferred till the work is drawing near the period of its completion. When that will be, "Man does not know."

P.

* Great diversity of opinion exists among authors of the present day as to the precise animal which formed this celebrated article of Roman luxury. By some, it is stated to have been the caterpillar of the goat-moth,—*Phalena cossus*, of Linnæus,—*Cossus ligniperda*, of modern entomologists. Others believe it to have been the larva of a beetle of the *Lucanus* or *Cerambyx* genus. From our own researches on this curious subject, we are led to infer that the wood-boring caterpillars and larvæ of several insects, now arranged in different orders and genera, were, by the ancients, confounded, and eaten, under the common designation of *Cossus*. The most satisfactory account which we have hitherto seen, is given under the articles, *Calandre des Palmiers*, and *Capricorne*, in Cloquet's *Faune des Médecins, ou Histoire des Animaux et de leurs Produits*, 8vo. Paris,—an interesting periodical, commenced thirteen years ago, and not yet completed.

February.—VOL. II. NO. VII.

I

LITERARY AND SCIENTIFIC.

ON THE COMBINATIONS OF OXYGEN, WITH THE NON-METALLIC COMBUSTIBLES.

The following is an analysis of the lecture on this subject, delivered at the Athenæum, on the 22nd of December, by W. Addison, Esq. of Great Malvern:—

“In all the varied productions of Nature man may contemplate instances of the profoundest skill and wisdom, every object displaying a power and an intelligence superior to his own, and adequate to the production and maintenance of all he sees. Above him is a vast etherial expanse, traversed by a refulgent sun, and canopied with cloud or illumined by the moon, and studded with a thousand stars—beneath him is the earth on which he treads, with all its tribes of plants and animals, its rocks and water. A desire to obtain some knowledge of these objects is congenial to the intellectual character of man. Hence Natural Philosophy, which in its extended sense embraces every inquiry or investigation into the phenomena of Nature, whether Astronomy, Geology, Natural History, or Chemistry. In the study of Astronomy the imagination wanders through infinite realms of space, occupied by masses of matter in magnitude, and in the rapidity of their motions, beyond the feeble powers of our finite comprehension—yet all obedient to certain fixed laws, moving noiseless—in harmony—without confusion. The rapidity of the real movements of the planets, (measured by the scale of our experience,) exceeds conjecture; yet such is their boundless distance, and so wide the circles in which they range, that their apparent motion is hardly to be noticed. The foundations of Astronomy are laid in the highest departments of mathematical study, which few only can understand, yet the *verification* of the statements which these mathematical investigations evolve, comes home to every one, when we find the orbits of the earth, the moon, and all the planets pointed out with such certainty and precision that the particular station or place of either of them, in any period of time to come, may be foretold; and any partial or total obscuration of any one of them may be predicted, and all the circumstances which shall attend it be detailed as if describing an object of present observation. Such results as these shew the truth of astronomical reasoning—give the stamp of superiority to mathematical calculation—fix the high endowments of the mind of man, and indicate that the operations of the intellectual faculties can no more be estimated by the powers of his corporeal frame than the diameter of the earth can be measured by an outstretched arm.”

From Astronomy Mr. Addison proceeded to similar and highly interesting general observations upon Geology and Natural History.

“But if the student of Nature,” he observed, “passing by all these objects, is anxious to discover *the materials* employed in the several structures around him, then CHEMISTRY teaches him to unravel their complexity, exhibits the nature and properties of the elements composing them, and makes him acquainted with the laws which govern their combinations. The wonderful and sudden transformations with which this science is conversant, the violent activity often assumed by bodies usually considered as the most inert; and, above all, the insight it gives into the nature of innumerable operations daily carried on in the arts of civilized life, have contributed to render it the most popular, as it is one of the most useful, of the sciences.”

“A solid body,” said the lecturer, “may be chemically regarded as a fabric more or less regularly constructed, in which the *materials* and the *workmanship* may be separately considered, although the latter may be broken up or destroyed, the former remain unchanged, though, perhaps, very differently arranged.”

Instances of this were adduced in the burning of wood, the solution of crystallized salts, and the explosion of gunpowder—in all these cases, Mr. Addison

remarked, the workmanship, or the fabric, is destroyed, but the materials are neither lost, nor made away with. The latter instance, in particular, was noticed as being merely a change from the solid to the aeriform state. "It is the business of Chemistry," said Mr. A., "to investigate these and similar changes, and to inquire into all the circumstances which can influence them."

Many interesting observations were here made upon the imponderable agents Heat, Light, and Electricity, and Mr. Addison shewed that all simple elements might be arranged into two classes—the *electro-positive* and the *electro-negative*; from the former Mr. A. selected hydrogen, nitrogen, sulphur, phosphorus, and carbon, and from the latter oxygen—detailing the several properties peculiar to each, and giving a succinct account of the various compounds which they form by combination with each other. Water was shewn to be a compound of two invisible gases, oxygen and hydrogen; and a very beautiful experiment was exhibited, in which a small mass of platina by being merely suspended in a current of hydrogen gas, was rendered red-hot, remaining so as long as the stream of invisible matter impinged upon it. Mr. Addison explained that this effect was produced by the union of the hydrogen with the oxygen of the atmosphere, effected by the platina which was rendered red-hot thereby, the result being pure water, which was copiously deposited in pearly drops of dew upon a small glass receiver which Mr. Addison held for a short time over the glowing platina.

Sulphuric acid (oil of vitriol) is a compound of sulphur and oxygen. Nitric acid (aqua fortis) of nitrogen and oxygen. Ammonia (hartshorn) of hydrogen and nitrogen; the two last are colourless fluids, and formed by the union of two invisible gases, yet totally dissimilar in all their qualities. The combustion of sulphur in oxygen gas was shewn, and the beautiful blue or purple light emitted called forth the admiration of the audience.

"There is nothing which excites the wonder of the chemical student more than the tremendous powers which the particles of matter in certain modes of combination display; instances of it are afforded in the *vapour* and in the *freezing* of water; to the power evinced by the former the steam-engine owes all its usefulness; and the bursting of strong leaden pipes during severe frosts are familiar demonstrations of it in the latter. The vast power derived from the combustion of gunpowder is another sufficiently homely example. "There is a compound of silver," said Mr. Addison, "which can hardly be handled without exploding; and another of mercury which explodes violently by a slight blow. The chloride of nitrogen is another hazardous compound, it is an oil-like fluid, decomposed by many combustibles, with powerful detonation: Dulong, who discovered it, lost an eye and the use of a finger before he was aware of its dangerous nature; and Sir H. Davy was wounded in the face by the effects arising from its sudden decomposition."

The various combinations of phosphorus and carbon were then briefly noticed, and the atomic theory, with the laws of definite combination and proportionate numbers popularly explained. This was followed by illustrations of the nature of combustion; and the brilliancy of flame was shewn to depend upon the large proportions of carbon carried up and burnt in the hydrogen which forms the body and figure of the flame, for instance, of a candle.

This interesting and instructive lecture was concluded by a brief history of the various theories which have at one period or another prevailed upon the subject of combustion—theories which have now all given way before the experimentally established doctrines of modern chemistry, beautifully developed by the researches of Hooke, Mayow, Cavendish, Lavoisier, &c.—and combustion is proved to consist in the union of the elements composing the combustible with the ponderable part of the oxygen of the air, the results, in all ordinary cases, being water and carbonic acid, which are dissipated in the atmosphere.

We cannot conclude this brief notice of Mr. Addison's lecture without giving our readers the following pertinent observations with which it closed:—

"Whatever may have been the rapid strides of chemical discovery within the last century, more, much more, remains for future investigation. The farther we advance in any branch of the study of Natural Philosophy, the more its circle instead of closing on us, widens; when we reach some distant but seem-

ingly fixed point where we thought to terminate a definite object of inquiry—then the boundaries recede—fresh objects and novel contemplations pour in upon us on every side, multiplying and becoming more wonderful and more worthy our attention at every step. From these accumulating scenes the humble man (and true philosophy will make its votary humble) learns the little that he can, and in understanding that little, becomes not only better acquainted with himself, but gains a more correct and exalted knowledge of his Maker,—while the vain who pride themselves in a fancied knowledge too often fail, not only in these, but in contemplating as they ought the coming scenes of futurity.”

SCIENTIFIC LECTURES AT KIDDERMINSTER.

The Committee for conducting the affairs of the Kidderminster Public Library having long felt the want of a Scientific Institution in that populous and increasing town, to meet the general taste for really useful knowledge, at length determined to arrange a course of lectures on scientific and philosophical subjects, which should tend to give a new impetus to the feeling of the inhabitants, and gratify their numerous and highly respectable subscribers. On this being made known to Thomas Bradley, Esq. the respected High Bailiff of the borough, that gentleman with the utmost urbanity and politeness, granted the use of the Town-hall for the purpose, and on Monday, the 12th of January, R. J. Streeten, Esq. M. D., of Worcester, opened the course with an introductory lecture.

We regret to be compelled to abridge this admirable lecture so closely, that it can hardly be said to bear more than a slight sketch of the original discourse.

The lecturer, after shewing the manifold advantages to be derived from discussing and investigating the various topics of scientific inquiry, pointed out the important benefits resulting from the practical application of demonstrative knowledge considered with relation to our external comforts—but the most influential advantage connected with these pursuits, he observed, was that arising from the culture of the intellectual powers and consequent elevation of the mind.

“If man, considered as a sentient being (he observed), is in any way raised above the beasts that perish, it is surely by the possession of those reasoning faculties—those powers of observation, of reflection, of comparison, and of judgment, which, whatever advantages he may derive from the peculiarities and perfection of his organization, still constitute the main distinctive marks between him and the whole race of animated beings. And if this be true, the cultivation of these faculties must necessarily raise him in the scale of being. One, then, of the prominent advantages of the cultivation of science, perhaps the most prominent, is the raising of our race from the debased condition in which we too often find some of its members delighting to revel—a condition which is only distinguished from that of the brute creation by the additional degradation arising from the prostitution of the powers of mind, as well as those of body, in the grovelling pursuits of the mere animal principle.”

“To cultivate science for its own sake ;—for the sake of the gratification and amusement we derive in the acquisition of the many curious facts which it unfolds, is a pure and delightful recreation ;—to cultivate it for the good which may result to our fellow creatures, in the addition to their bodily comforts and the general improvement of their external circumstances, is an object worthy of the philanthropist ;—but to cultivate it as a means of advancing the moral and intellectual condition—of affording not only facts, whereupon to exercise the powers of the mind, but as a means of developing those powers, is a still higher aim. It is the aim, the object of every one who wishes his fellow-men to take that rank in the scale of being which the Almighty Creator has assigned to them. And yet this is not the loftiest flight, this is not the noblest end to which the investigation of the powers,

the laws, and the objects of nature leads us. In seeking to read the book of nature, and to develope the laws by which the processes therein unfolded to our view are governed and regulated, we seek to become acquainted with the operations of that Divine mind which presides alike over every page of the record of creation as over every page of the record of revelation."

The lecturer then proceeded to unfold the nature of those grand ultimate principles, as displayed in their effects upon material bodies, gravitation, undulatory motion and polarizing forces, which appear to regulate the phenomena of the universe, and the investigation of which constitutes the several branches of science; and afterwards passed to the consideration of that additional principle of life implanted in organized bodies.

On the undulatory theory of light, the lecturer remarked—"I may mention the following curious instance of the conclusions to which, upon this view of the nature of light, mathematical calculations of undoubted accuracy, and a chain of reasoning which does not admit of dispute, have led. 'Modern optical inquiries have disclosed,' observes Sir John Herschel, 'that every point of a medium through which a ray of light passes is affected with a succession of periodical movements, regularly recurring at equal intervals, no less than five hundred millions of millions of times in a single second! that it is by such movements, communicated to the nerves of our eyes, that we see—nay more, that it is the *difference* in the frequency of their recurrence which affects us with the sense of the diversity of colour; that, for instance, in acquiring the sensation of redness, our eyes are affected four hundred and eighty-two millions of millions of times; of yellowness, five hundred and forty-two millions of millions of times; and of violet, seven hundred and seven millions of millions of times per second.'

"Were it not that other parts of the works of the great Creator clearly prove that magnitude and number present no limits to his power—that the vast and the minute are equally the object of his attention, we should be almost tempted to throw aside the sublime truths of mathematical science as the wild reveries of a heated imagination; but every branch of science leads to the same conclusions, overwhelming as they are to the powers of the human intellect, and every mode of investigation teaches the same results; and while we make the vain attempt to conceive the wonders of creation, we can only pause and admire when the faint glimmering perception, which alone we are able to obtain, arises in our minds. Let us for a moment endeavour to realize to our view the wonderful velocity of these vibrations—five hundred millions of millions of times in a second—and then consider the sublime fiat of the Almighty Creator calling this undulatory motion of inconceivable rapidity into existence—"Let there be light."

Upon the subject of Natural History it was observed—"The especial object of Botany is, as you are aware, the investigation of the phenomena presented by the vegetable kingdom;—that of Zoology, the study of the phenomena presented by the animal kingdom. The one principle which pervades both these divisions of the works of the Divine Creator is life. But what that principle is, in what it consists, how it acts in the regulation of the bodies, and of the parts of the bodies in which it exists, we are utterly unable to say. Endowed with this principle, the most minute and simple vesicles of animal or vegetable existence, as well as the most elaborate of their forms, for a time, at least, and within certain limits, exert a controul over those powerful forces by which the worlds above us roll in their vast orbits, and the whole system of the universe is kept in its place. The powdery lichen which incrusts the surface of the rock, and the loftiest oak or pine of the forest, the monad of which five hundred millions may be crowded into the space of one cubic inch, and the majestic elephant; yes! and the noble form of man himself, alike owe their developement and their existence to the implantation of this mysterious principle; for, deprived of life, they die and moulder into dust, from that moment becoming subject only to the powers which regulate inert matter.

"Examine this principle in some of the more simple forms of existence, and you would think it could scarcely be destroyed, for it will last for ages dormant in the seeds of many of the vegetable tribes and some of the inferior animals, the polype for instance, may be maimed and divided almost indefinitely, and the maimed parts will be reproduced, and the divided parts will each form a perfect animal—further, some of the aquatic animalcula, which inhabit gutters, and other places where

water stagnates, may be dried and remain to all appearance inert as the mere dust of the earth for weeks and months, and yet, on the application of a little water, will again become active and exert the functions of life with the same energy as before. Examine it again in its state of highest perfection, in the most elaborate forms of vegetable and animal being, and you will find that a suspension for a few seconds only of some one of the processes in which it is concerned reduces the complicated structure, but a moment before flourishing in full vigour and activity, to a decaying or inanimate mass of dead matter. Once more, let us contrast it as displayed in an individual of our own race; born, it is true, a child, growing up through the period of youth into manhood, and at length gradually descending into the vale of years, but still, throughout, a perfect man; and in the insect egg, deposited by its parent and cradled upon some other form of animal or vegetable being, becoming in the second stage of its existence a worm which devours its nest, and then crawls upon the ground; in a third stage losing all semblance of life, and enveloped in a mimic shroud, at length bursting into a new and glorious existence, arrayed in glowing colours, to range with expanded wing, the free, the unfettered inhabitant of air."

In investigating the phenomena of living beings, the eloquent lecturer observed—"To define the limits where instinct ends and reason commences, would indeed be a difficult task, and the investigation of this principle and of that assemblage of faculties constituting reason, and the powers of the mind, would plunge us at once into the depths of metaphysical discussion. Without entering here upon this intricate subject, it is sufficient for us to derive the conclusion—a conclusion to which the investigation of the phenomena of life, as exhibited in the highest link of the animal creation, our own species, inevitably leads—that in man at least, another and a higher principle than even that of life exerts its sway—a principle which leads him to thirst after knowledge, and to seek his own and another's good—a principle which, not satisfied with the transient pleasures and the existence which the life that he now enjoys confers upon him, constrains him to aspire to worlds yet unknown, and to seek after an immortality which the records of revelation have shewn that he is hereafter to inherit.

"I say not that these aspirations after eternal truth and immutable good are natural to man in his present fallen state, but perhaps there is no individual so dark—none so utterly debased—at least where the light of Christianity sheds its benign influence, who has not, at some part of the period which intervenes between his attaining the years of reflection and the termination of his existence on this passing scene, experienced some desires after that existence in the regions of bliss to which a way has been opened through the beneficence of his Creator.

"When the lamp of science sheds a light upon this path—when it leads man to a more intimate knowledge of the ways and of the wisdom of the Almighty Being who formed him from the dust, and breathed into his nostrils the breath of life—when to man the heavens declare the glory of God, and the firmament sheweth his handy-work, then does the record of creation fulfil its most important end—instruction in that true wisdom, the possession of which can alone constitute the Christian philosopher.

"Philosophy, baptised

In the pure fountain of eternal love,
Has eyes indeed : and viewing all she sees
As meant to indicate a God to man.
Gives *him* his praise, and forfeits not her own."—COWPER.

We are now most unwillingly forced to pass on to the conclusion of this comprehensive lecture, which was to the following effect:—

"And now, before bringing these observations to a conclusion, permit me to lay before you the bright example of one who was all that a man of science should be. Though labouring under every external disadvantage, the child of obscurity, indebted to the charity of a benevolent public for his education and the support of his early years, behold the revered Newton holding on his course in the paths of calm philosophy; at every step of his progress amply repaying the fostering care of that public; conferring benefits upon his fellow creatures in the most exalted mode: at length, receiving the highest distinctions which science has to offer, and achieving for himself a name, imperishable, and ranking with the highest which grace the annals of mankind. Behold him in his hours of study, developing those

brilliant phenomena which belong to that great principle light; investigating its nature, working out its laws, step by step, with the most cautious and philosophic induction, but guided, throughout, by the most admirable sagacity;—behold him laying down the laws which regulate the universe; devising new modes by which to investigate the complicated motions of the heavenly bodies, modes of mathematical analysis of such depth and power, that even the highest intellects have scarcely been able to wield them; and, ultimately, bringing to light the beautiful unity, simplicity, and order, of the whole celestial mechanism; concerning which, all that had been previously made known was little better than an intricate mass of false hypothesis;—behold the vast powers of his mind developed in that master-work the *Principia*, the perfection of mathematical and inductive analysis:—and yet, throughout the whole of this bright career, behold him simple, humble, and a Christian; and at the last, when the great work which had been assigned him to accomplish on this transient scene was nearly finished, exclaiming, impressed with an overwhelming sense of the vast extent and unfathomable depths of creation, ‘I have been merely picking up shells upon the shores of the great ocean truth.’”

ON THE ELEMENTARY BODIES, AND THE LAWS WHICH REGULATE THEIR UNION WITH EACH OTHER.

On January 15th, John Woolrich, Esq. Lecturer at the School of Medicine, Birmingham, delivered the first of a series of lectures on Chemistry, at the Town-hall, Kidderminster.

If a person unaccustomed to chemical research could take a survey over the globe, including its mineral productions, the great masses of water and the atmosphere that surrounds it, together with the animal and vegetable creations, he would be apt to conclude that they were formed of an almost infinite variety of substances, and he would despair of ever becoming acquainted with them. Such, however, is now the state of natural science, that we are enabled, through the labours of eminent men of the present and preceding generations, to acquire, with comparatively little talent and labour, a knowledge of the composition and properties of almost all bodies that are presented to our notice.

By chemical analysis all the various substances constituting the animal, vegetable, and mineral kingdoms may be reduced to 54 simple or undecomposed elementary bodies.

By an elementary body is not understood a body absolutely simple and incapable of further decomposition. It is probable that many of those bodies which are now considered as simple, may be compound, but, until we succeed in decomposing or separating them into more simple parts, we are bound to consider them, according to the logic of chemistry, as elements. The ancients conceived that all compound bodies were formed of the four elements—fire, air, earth, and water. This view, however, of the constitution of bodies has long since been proved to be a mere assumption, unfounded upon experiment. Air, earth, and water are now proved to be compounds.

Modern Philosophy teaches us to consider all bodies as elements that have not yet been decomposed; and according to the present state of chemical science there are 54 of these bodies. By the union of these elementary bodies with each other in various proportions, all the variety of compounds are formed.

A knowledge of the properties of these elementary bodies, and of the compounds they form, constitutes the science of chemistry, a science of greater utility and more subservient to the wants of mankind than any other.

The 54 elementary bodies may be very conveniently divided into three classes, according to their particular properties. In the first class five of them may be included, viz.—*oxygen, chlorine, iodine, bromine, and fluorine*. These elementary bodies are remarkable for the energy of their action upon other bodies, in many cases so violent as to produce combustion—hence they were formerly termed “*supporters of combustion*,” and they were considered as such exclusively. We find, however, bodies belonging to the other classes capable, by their union of

producing heat and light, or in other words, of exhibiting the phenomena of combustion. The principal distinction which separates these five elements from others, is their electrical relations. Compound bodies, containing any of them in combination with others, when decomposed by the agency of electricity, always present these elements at the positive pole of the galvanic battery—hence they are frequently termed *electro-negative bodies*.

The remaining 49 elementary bodies are all opposed in their electrical relations to the first class, and when separated from their combinations, always appear at the negative pole of the battery—hence they are termed *electro-positive bodies*.

But these 49 electro-positive bodies are again divided into *metallic* and *non-metallic* bodies. The number of the non-metallic bodies is eight—the number of the metals is 41; so that by far the greater number of the elementary bodies are metals.

The eight non-metallic bodies are *nitrogen, hydrogen, carbon, sulphur, phosphorus, boron, selenium, and silicon*. These are remarkable not only on account of their electrical relations, but also because they form *acids* by their union with oxygen, or with some other body of the first class, thus—

Nitrogen with Oxygen forms	Nitric Acid.
Carbon	Carbonic Acid.
Sulphur	Sulphuric Acid.
Phosphorus	Phosphoric Acid.
Boron	Boracic Acid.
Selenium	Selenic Acid.
Silicon	Silicic Acid, or Silica.

Hydrogen does not form any acid with oxygen, but with chlorine it constitutes muriatic acid.

Of the 41 metals, some of them were known at an early period of time, while others are of very modern discovery. Tubal Cain, we learn in the 4th chapter of Genesis, was an artificer in copper and iron, and it is probable this person is the same that is spoken of in fabulous history under the name of Vulcan.

The following table contains a list of the metals, and the dates of their discovery :

Gold, Silver, Iron, Copper, Mercury, Lead, } known to the Ancients.	
Tin	
Antimony	described by Basil Valentine
Zinc	Agricola
Bismuth	Paracelsus
Arsenic and Cobalt	Brandt
Platina	discovered by Wood, Assay Master, } 1741
	Jamaica
Nickel	Cronstedt
Manganese	Gahn and Scheele
Tungsten	M. M. D'elhuysart
Tellurium	Müller
Molybdenum	Hielm
Uranium	Klaproth
Titanium	Gregor
Chromium	Vauquelin
Columbium	Hatchett
Palladium and Rhodium	Woolaston
Iridium and Osmium	Smithson Tennant
Cerium	Hisinger and Berzelius
Potassium, Sodium, Barium, Strontium, }	
Calcium	Sir H. Davy
Cadmium	Stromeyer
Lithium	Arfwedson
Zirconium	Berzelius
Aluminum, Glucinum, Yttrium	Wohler
Thorium	Berzelius
Magnesium	Bussy
Vanadium	Sefstrom

The characteristic properties of metals are the following :—They are good conductors of electricity and of caloric. They are perfectly opaque even when reduced into thin leaves, and when polished they are good reflectors of light, and possess considerable lustre. When the compounds which they form with the elements of the other classes are submitted to the action of galvanism, the metals always appear at the negative end of the battery.

Having thus introduced the elementary bodies, Mr. W. proceeded to direct the attention of his audience to the laws which regulate their union with each other.

The matter of which the elementary bodies are composed is conceived by most philosophers of the present day to consist of exceedingly small particles or atoms, differing in weight from each other, but incapable of division—hence they must be considered as hard and penetrable. Some philosophers have indeed argued, and with great plausibility, that matter is capable of indefinite division. It is certain we can have no idea of a particle of matter that has been divided, whose half may not again be divided, and so on, *ad infinitum*. But here is one of the barriers to human knowledge—here we are compelled to confess our ignorance of the original formation of matter. In reasoning, however, upon various chemical phenomena, and observing the constant, the uniform, and definite proportions of the elements, and the unchangeable nature of these elements, it is found, if not more reasonable, at least more convenient, to consider them as atoms or particles, hard, impenetrable, and incapable of further division. But these atoms of themselves would be totally inert, and exhibit no disposition to combine, were it not for certain properties with which they are indued, or for certain subtle agents which govern their action upon each other. These agents, or properties of matter, are, *attraction of gravitation, heat, light, and electricity*. They are sometimes called imponderable agents, because they do not appear to possess weight; and subtle, because they cannot be confined in any way, or obtained in an uncombined state. Although it is usual to consider the phenomena of attraction, of gravitation, heat, light, and electricity separately, and as resulting from distinct causes, yet it is not improbable that some of them are modifications of each other, and may be considered as belonging to the same family, as the offspring of one common parent.

Attraction of gravitation is that power which causes a stone or any other substance, when thrown into the atmosphere, to fall back to the earth. It acts upon all bodies in proportion to their density—its influence is universal—it extends to the planets, and tends to preserve them in their respective orbits.

If a ball be discharged from a piece of artillery, it will describe a curve, and at length fall to the ground—the impulse given to the ball endeavours to drive it in a right line, but the attraction of the earth gradually draws it towards itself. These two forces are termed the *centripetal* and *centrifugal* forces. If the impulse given to the ball were exerted to a certain extent in free space, having no atmosphere to resist its motion, it would continuously revolve round the earth, as the planets do round the sun, in consequence of the equilibrium of these two forces.

At the surface of the earth gravitation is most powerful. It decreases as we approach the centre of the earth, as the distance from the surface increases—but it decreases as we recede from the earth, *as the square of the distance*—hence bodies in falling acquire an increase of velocity. These laws were first clearly demonstrated by Sir Isaac Newton, and by them he explained the motions of the planets and the various systems of the universe.

When bodies are brought very near to each other, so as to appear in actual contact, they attract each other still more powerfully by a force which is probably only a modification of gravitation, but which is usually termed *attraction of cohesion, or aggregation*. Two flat pieces of glass or lead, when brought together, adhere firmly, in consequence of attraction of cohesion. Water in a glass vessel assumes a concave surface, mercury a convex surface; the former being attracted by the sides of the glass, while the latter has more attraction for its own particles than for the glass. By this power, metals, stones, wood, and all the most solid materials of the globe preserve their respective forms. The dew that falls upon the leaves of many vegetables, particularly upon the cabbage-leaf, forms itself into beautiful spheroidal drops, and as a poet has expressed himself of the tear that flows down the cheek—

“That very law which moulds a tear,
And bids it trickle from its source,
That law preserves the earth a sphere,
And guides the planets in their course.”

Mr. W. here exhibited several experiments in illustration of attraction of cohesion, and then proceeded to the consideration of heat. There appears, he
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observed, to be another power in nature upon which the various forms of matter greatly depend. It is that power which occasions in us the sensation of heat, and is now called *caloric*.

While attraction of cohesion is always endeavouring to bring the particles of matter nearer to each other, caloric is endeavouring to separate them to a greater distance—hence result the various forms of solid, liquid, and gaseous bodies. When attraction of cohesion predominates, the substance acted upon is solid,—when cohesion and calorific repulsion balance each other, the substance assumes a liquid state,—when calorific repulsion prevails, the substance becomes æriform or gaseous. This is exemplified in the several states of ice, water, and steam.

Suppose the power of cohesion were suddenly withdrawn from the earth, leaving its antagonist, caloric, to exert its power uninfluenced, what would be the effect? The particles of matter of every kind, even of the hardest rocks, would separate from each other and be driven into the immensity of space, leaving no appearance of anything material. How easily by such an act might the Almighty destroy a world.

Mr. W. illustrated the nature of cohesion by a variety of experiments.

The next agent, observed Mr. W., is *light*—the influence of which upon the animal and vegetable kingdoms is particularly manifest. The infinite variety of colours in the vegetable kingdom, the delightful odours of flowers, and their delicious fruits, depend entirely upon the genial influence of the light and warmth of the sun. But even unorganized matter is in some degree under the influence of light, and many chemical phenomena are produced by its presence. The combination of chlorine and hydrogen gases, which constitute muriatic acid, does not take place without the presence of light. The crystallization of bodies is greatly influenced by light. Steel needles are rendered magnetic by the violet-coloured ray of light.

The last agent which it will be necessary to notice is *electricity*. The influence of this agent in the economy of nature is exceedingly important, and in many cases most surprising. Among the natural phenomena dependent upon electricity, we may enumerate the formation of clouds, of dew, rain, hail, and snow, and probably the *aurora borealis*. The vital principle of animals and of vegetables is considered by some physiologists as dependent upon electricity. The simplest mode of exciting the electricity of bodies is by friction, as was done in amber by the ancients. But it may also be made sensible to us by other means. By heating some crystalline bodies, as the tourmalin and boracite, they exhibit electrical phenomena; by the mere contact of two dissimilar metals, as was first shewn by Volta, and hence it has been called Voltaic electricity; and also by the mixture of bodies chemically. It is very probable, indeed, that what is called *chemical attraction* or *affinity*, is entirely dependent upon the electrical relations of bodies.

It has also been rendered highly probable by recent discoveries that magnetism is identical with electricity. Magnetic attraction may easily be communicated to a bar of iron by the influence of electricity. So extraordinary, indeed, is this influence, that a bar of iron about two feet long may be instantly rendered so powerfully magnetic as to support a weight of two or three hundred pounds, and by a combination of such bars a weight of more than two thousand pounds has been supported.

Mr. W. exhibited this experiment by a very simple but powerful apparatus. He then said, having briefly noticed the influence which attraction of gravitation, heat, light, and electricity, have in the various operations of nature, I shall proceed to consider more particularly what is called *chemical attraction* or *affinity*, upon which depends the immediate combination of the elementary bodies with each other.

Chemical affinity only takes place at insensible distances—this may be shewn by putting carbonate of soda and tartaric acid in powder together. Although the particles of each appear to be in contact, yet no union takes place so long as they remain dry, but on the addition of water, which dissolves them, and brings their particles into closer contact, then chemical union is effected. Cohesive attraction must be overcome before chemical affinity can take place—this is sometimes effected by heat, as when copper and zinc are melted together to form brass. That one or both of the substances to be united should be in a liquid state, was formerly laid down as a chemical axiom, "*Corpora non agunt nisi sint fluida*;" but to

this law there are some exceptions. Oxalic acid and lime unite in the dry state, and snow and salt will combine without being first melted.

That chemical affinity is dependent on the electrical states of bodies, has been rendered highly probable from the experiments of Sir H. Davy and others. Substances that have ordinarily powerful affinities for each other may be separated by the electric agency, and one body may be made to pass through another for which it has commonly a strong affinity, without combining it—thus acids will pass through alkaline solutions, and alkalis through acids, without combination.

A knowledge of chemical affinities enables us to separate substances from each other, and to unite others, so as to form new compounds.

When one substance is employed to separate another from its combination, it is effected by what is called *single elective affinity*, as when sulphuric acid is added to a solution of muriate of baryta—the baryta leaves the muriatic acid, combines with the sulphuric acid, and is precipitated as the insoluble sulphate of baryta.

When one compound, containing two substances, is employed to decompose another compound, and two new compounds result from the decomposition, the exchange is effected by what is termed *double elective affinity*: thus, when a solution of carbonate of potash, and a solution of sulphate of magnesia are mixed together, the carbonic acid leaves the potash to combine with the magnesia, and form the insoluble carbonate of magnesia which is precipitated—while the sulphuric acid leaves the magnesia to combine with the potash, forming sulphate of potash.

Bergman, who introduced these terms, conceived that chemical action was, in all cases, owing to elective affinity, and, accordingly, he drew up tables of affinity between different bodies; but Berthollet pointed out the error of Bergman's opinions, and shewed that chemical affinity is not invariably the same in all cases. He attempted to prove, indeed, that it is always influenced by modifying circumstances, such as temperature, cohesion, elasticity, and quantity of matter. But in this attempt Berthollet went rather too far. That chemical affinity is greatly influenced by them is true—but still chemical affinity exists independent of them. Thus when iron, lead, and silver are exposed to the action of oxygen or atmospheric air, the iron readily unites with the oxygen, the lead gradually combines with it, but the silver is scarcely affected by it; and under the same circumstances we find water much more disposed to combine with some substances than with others; with muriatic acid gas it combines much more freely than with carbonic acid gas, and with the latter gas still more freely than with oxygen. Oil has no disposition to combine with water, yet it readily unites with a solution of potash forming soap.

The effect of one of the modifying circumstances of Berthollet may be seen in the following experiment:—On passing a stream of hydrogen gas over the *oxide of iron* heated to redness, the oxygen of the iron will unite with the hydrogen, and form water; again, on passing the vapour of water over *iron filings*, heated to redness, the iron will separate the oxygen from the vapour of water. From the first experiment it follows that hydrogen has a stronger affinity for oxygen than iron has; but from the second, it would appear that iron has the strongest affinity for oxygen, because it separates that element from its combination with hydrogen. This alteration of affinities between hydrogen, oxygen, and iron, is probably owing to an alteration in their electrical conditions effected by the agency of caloric.

The effect of heat and elasticity in modifying chemical affinity, is exhibited very clearly in the formation of carbonate of ammonia by sublimation, from muriate of ammonia and carbonate of lime. If a solution of carbonate of ammonia and muriate of lime be put together, a double decomposition will follow. The carbonic acid will leave the ammonia to unite with the lime, forming an insoluble precipitate of carbonate of lime, while the muriatic acid will leave the lime to combine with the ammonia, forming muriate of ammonia. From what takes place in this experiment it would scarcely be expected that carbonate of lime could be made to decompose muriate of ammonia; yet by putting these substances together and applying heat, a decomposition is effected, and the muriatic acid again combines with the lime, forming muriate of lime, while the carbonic acid leaves the lime, and again unites with the ammonia, forming carbonate of ammonia.

When bodies unite with each other, the resulting compounds always possess properties differing from those of their constituents. Thus, highly corrosive and pungent bodies often become tasteless and inodorous; and, on the other hand, tasteless and inodorous bodies become corrosive and pungent. Solids become

liquids, and liquids and gaseous bodies often become solid. Gypsum, or plaster of Paris, a perfectly tasteless substance, is composed of 40 parts of sulphuric acid, and 28 parts of quick lime, both highly corrosive bodies. Common salt is composed of 36 parts of chlorine, a very suffocating gas, and 24 parts of sodium; the metallic base of soda. The salt called salammoniac, is composed of two gases, viz., the muriatic acid gas and ammoniacal gas.

Mr. W. here illustrated the above remarks by numerous interesting experiments; among which were the following:—

1. On mixing together sulphuric acid, and a solution of pure potash, both corrosive bodies, they formed a neutral solution of sulphate of potash, possessing a slightly saline taste, but neither acid nor alkaline.

2. On introducing ammoniacal gas and carbonic acid gas into a glass vessel, they combined and formed a crystalline solid. Carbonate of ammonia.

3. On mixing together solutions of muriate of lime and carbonate of potash, the two liquids instantly became solid.

4. On displaying about four ounces each of salammoniac, salt petre, and glauber's salt in about a pint of water, and introducing a glass of water into the solution, the water in the glass was speedily frozen, and a degree of cold produced as low as 20° below the freezing point.

5. On mixing sulphuric acid and water together, a temperature equal to that of boiling water was instantly obtained, and spirits of wine, contained in a long glass, boiled in it.

Mr. W. then adverted to the *proportions* in which bodies unite in the formation of compounds.

Bodies appear to unite together in three ways. First, *unlimitedly in every proportion*, as when spirits of wine and water, or sulphuric acid and water, are mixed together; a drop of sulphuric acid may be combined with a gallon of water, or a gallon of water may be combined with a drop of sulphuric acid, and the two substances will be found intimately united in every portion of the liquid.

Secondly, *in every proportion within a certain limit*, as when salts are dissolved in water; thus 100 pounds of water will dissolve any quantity of salt not exceeding 40 pounds. These kinds of combinations, however, may be regarded rather as mixtures than as chemical compounds; these substances undergo no particular change by their union, and they still possess the separate properties of each of the components.

The third kind of combination always takes place between bodies *in limited and definite proportions*, the knowledge of which constitutes an exceedingly interesting and useful branch of study. The compounds thus formed always possess properties essentially different from their constituents.

In this way some bodies unite only in one proportion, as hydrogen with chlorine, forming muriatic acid; no other compound of these two elements being known.

Other bodies unite in two proportions, as hydrogen with oxygen, forming water, and deutoxide of hydrogen; others unite in three, four, five, and, even, six proportions; but whenever two substances form more than one compound, the other compounds contain multiple proportions of one of the elements of the first compound; for instance, there are two compounds of mercury and oxygen, and they are thus constituted.

1st.—8 parts of Oxygen to 200 parts of Mercury.

2d.—16 parts of Oxygen to 200 parts of Mercury.

The first is called the protoxide, the second, the per-oxide, of mercury. Oxygen combines with nitrogen in no less than five distinct proportions, thus:—

1.—Protoxide of Nitrogen,	8 Oxygen,	14 Nitrogen.
2.—Deutoxide of Nitrogen,	16 Oxygen,	14 Nitrogen.
3.—Hyponitrous Acid,	24 Oxygen,	14 Nitrogen.
4.—Nitrous Acid,	32 Oxygen,	14 Nitrogen.
5.—Nitric Acid,	40 Oxygen,	14 Nitrogen.

It will be observed that each of the proportions of oxygen is a multiple of 8, while the proportion of nitrogen remains 14 in all the compounds. These numbers are the relative weights of each substance.

Occasionally, however, we meet with two compounds, the second of which contains only one-half more of one of the elements, for instance, the two oxides of iron and the three oxides of lead are thus formed:—

Protoxide of Iron,	Iron	28,	Oxygen	8
Per-oxide of Iron,	Iron	28,	Oxygen	12
Protoxide of Lead,	Lead	104,	Oxygen	8
Deutoxide of Lead,	Lead	104,	Oxygen	12
Per-oxide of Lead,	Lead	104,	Oxygen	16

If we consider the proportions in which bodies unite with each other, as representing the relative weights of their atoms, it would follow that the first oxide of iron is composed of one atom of metal to one of oxygen; and the second oxide, of one atom of metal to one and a half of oxygen, or, rather, (to avoid the absurdity of splitting an atom,) of two atoms of iron with three atoms of oxygen; and we may consider the three atoms of lead as similarly constituted. But it is not necessary to involve the question of the atomic theory, which is hypothetical, with the practical consideration of chemical equivalents. It has been ascertained, by direct experiment, that all bodies unite together chemically, in definite proportions, which are fixed and invariable; these proportions, when reduced to their smallest quantities, compared to some element as a standard, are called equivalent proportions, or combining proportions; thus taking hydrogen as unity, the following are the equivalent proportions of

Oxygen,	8	Carbon,	6	Potassium,	40
Nitrogen,	14	Sulphur,	16	Sodium,	24
Chlorine,	36	Iron,	28	Lead,	104

The equivalent proportions of all the elementary bodies have been ascertained, as correctly as the present state of chemical science admits, and, although there is some difference in the estimations of different chemists, yet it seldom amounts to anything very considerable. (A table of the combining proportions of all the elementary bodies was exhibited in the lecture room.)

Whenever any of the elementary bodies unite together, they unite in equivalent proportions, or in multiples of those proportions; and even when two *compounds* unite together, the same order of definite and multiple proportions prevails; for example, there are two compounds of carbonic acid and potash; they are composed

1st.—Carbonic Acid, ...	22,	Potash,	48
2nd.—Carbonic Acid, .	44,	Potash,	48

The second (bicarbonate of potash) contains twice as much carbonic acid as the first. In order to arrive at the equivalent proportions of carbonic acid and potash, it is necessary to refer to the equivalents of their elements, thus, carbonic acid is composed of one equivalent of carbon, 6, and two equivalents of oxygen, 16, making 22. Potash is composed of one equivalent of potassium, 40, and one of oxygen, 8, making its equivalent 48.

A knowledge of the laws of combination is of the greatest utility to the practical chemist. By knowing the equivalent or combining proportions, he can, with the greatest ease, tell the proportions of the elements which constitute any compound, the quantity of any substance necessary to decompose it, and the amount of the new products.

Mr. W. next proceeded to explain numerous applications of the laws of equivalent proportions, and pointed out their particular use to the manufacturer, as well as to the scientific chemist. He then concluded his lecture, which was evidently received with great interest and satisfaction, by a most respectable audience.

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Mr. Brockedon's *Road-Book to Italy*, the publication of which has been for some time delayed, is now in so great a state of forwardness that it will be completed early next year, the volume containing 25 Views.

A new Edition of the works of Milton is forthcoming, in Monthly Parts, with Life and copious original and collated Notes by Sir Egerton Brydges, and historical and imaginative Illustrations by J. M. W. Turner, R. A.

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An important work by M. Keferstein has

just appeared at Leipsic, on the Physiology of the Earth, Geognosy, Geology, and Palæontology (Fossils). The latter part contains a voluminous catalogue, with the Latin names, of all the known fossils of either the animal or vegetable kingdom.

The Life and Times of William III. King of England, and Stadtholder of Holland. By the Hon. Arthur Trevor, M.A.F.A.S. &c.

A work is preparing for publication entitled British Birds, frequenting Worcestershire and the adjacent Counties. Illustrated by Drawings from nature, with Observations on their Habits, by C. L. E. Perrott, honorary corresponding Member of the Worcestershire Natural History Society, and dedicated, by permission, to Her Royal Highness the Landgravine of Hesse Hombourg.

PREFERMENTS, MARRIAGES, &c.

PREFERMENTS.

The Rev. M. Fysche has been presented to the Rectory of Darlaston, in the county of Stafford, vacant by the death of the Rev. S. Lowe. Patron, the Rev. C. Simeon, of Cambridge.—The Hon. and Rev. G. G. C. Talbot, M. A., by the Lord Bishop of Gloucester, to the Rectory of Withington, vacant by the resignation of the Rev. Thomas Leveson Lane. Patron, the Lord Bishop of Worcester.—The Rev. Andrew Sayers, M. A. to the Perpetual Curacy of Pauntley, in the Diocese of Gloucester. Patron, the Lord Bishop of Gloucester.—The Rev. Wm. Godfery has been appointed a Minor Canon of Worcester Cathedral, in the room of the Rev. Thomas Heynes, resigned.—The Rev. Thomas Littleton Wheeler, M. A. one of the Minor Canons of the same Cathedral, has been presented to the vicarage of Tibberton, in Worcestershire, void by the cession of Robert Sanders, Clerk. Patrons, the Dean and Chapter of Worcester.—Rev. Robt Sanders, M. A. late Vicar of Tibberton, has been instituted, by commission, to the Rectory of Sedgewerrow, in the same county. Patron, the Dean and Chapter of Worcester.

MARRIAGES.

At St. Pancras, London, the Rev. C. Wharton, B. D., of Lower Mitton, Worcestershire, to Anne, eldest daughter of the late Rev. James Pope, Vicar of Great Staughton, Huntingdonshire, and formerly Fellow of St. John's, Oxford.—At Offchurch, the Rev. Ernest Adolphus Waller, youngest son of Sir Wathen Waller, of Pope's Villa, Twickenham, Bart. and G. C. H., to Miss Louisa Wise, youngest daughter of the Rev. Henry Wise, of Offchurch, Warwickshire.—At St. Chad's, Lichfield, Lieut. D. Woodruffe, R. N. to Maria, youngest daughter of the late Charles Hewitt, Esq. of the former place.—At Bromsgrove, the Rev. Francis Orpen Morris, B. A., to Anne, second daughter of the late Charles Sanders, Esq.—At St. Pancras New Church, the Rev. Cornelius Thompson, of Horley Vicarage, Oxfordshire, to Priscilla Eliza, daughter of Wm. Crookford, Esq. of Newmarket.—By special licence, at Nuneham Church, by his Grace the Archbishop of York, Lord Norreys, eldest son of the Earl and Countess of Abingdon, of Wytham, Berks, to Miss Harcourt, only child of George Harcourt, Esq., eldest son of the Archbishop of York.—At Sheffield, Dr. M'Dowall, of St. George's Terrace, to Jane, widow of Mr. Phillips, surgeon, of the East India Company's service, and eldest daughter of the late Edward Long, Esq. of Foregate-street, Worcester.—At Antony Church, Cornwall, Joseph Yorke, Esq., of Forthampton Court, Gloucestershire, to Frances Antonia, daughter of the Right

Hon. Reginald Pole Carew.—At the Spa Church, Gloucester, the Rev. C. Powell Jones, A. B., of Highampton, Devon, to Mary Anne, third daughter of Samuel Jones, Esq. of Waterloo Villa, near Gloucester.—At St. Helena, W. Alexander, Esq. son of the Bishop of Meath, to Jannet, daughter of the Governor of that Island, and niece of General Sir Thomas Dallas.—At Cirencester, J. J. Ireland, Esq. to Anne, second daughter of Mr. Shergold, of Cirencester.—At Kempsey, Sidney Chavasse, Esq. of Lichfield, to Miss Steede, of the former place.—At St. George's, Hanover-square, Sir A. Malet, Bart. to Miss Spalding, daughter of Lady Brougham and Vaux.—Gilbert Affleck, Esq. eldest son of Sir Robert Affleck, of Dalham-hall, Suffolk, Baronet, to Everina Frances, eldest daughter of Francis Ellis, Esq. Royal Crescent, Bath.—At the Catholic Chapel, Gloucester, and in the Parish Church of Newnham, John A. Curran, Esq. Barrister-at-Law, of Dublin, to Frances Dorothy, second daughter of Thomas Dolman, Esq. lately of Eaton Bishop, Herefordshire.—At Bromsgrove, the Rev. Francis Orpen Morris, B. A. eldest son of Capt. Henry Gage Morris, R. N. to Anne, second daughter of the late Charles Sanders, Esq.—At Stapleton, near Bristol, Gilbert Farquhar Græme Mathison, Esq. of the Royal Mint, to Eliza, daughter of the late Lieut.-Colonel Jones Græme, of Oldbury Court, Gloucester.—Robert Knapp Barrow, Esq. of Kington-house, near Thornbury, Gloucestershire, to Mercy, only child of the late Mr. Thomas Adams, of Oldbury upon-Severn.

BIRTHS.

At Downton Hall, Shropshire, the lady of Sir W. E. R. Boughton, Bart. of a daughter.—At Upton-upon-Severn, the lady of Captain T. J. Deverell, of a daughter.—At Bevere Knoll, near Worcester, the lady of Captain W. L. Cary, of a daughter.—Of a son, the lady of Abraham Turner, Esq. of Vicar-street, Kidderminster.—At Somerton Rectory, Oxon, the lady of the Rev. R. C. Clifton, of Beaumont-street, Oxford, of a son.—At Worcester, the lady of Dr. James Nash, of a daughter.—At Court-of-Hill, in the county of Salop, the lady of the Rev. John Durand Baker, of a daughter

DEATHS.

At Port Eliot, Devonport, Lady Susan Lygon, in the 34th year of her age. Lady Susan was the second daughter of the Earl of St. Germain's, and was married in 1834 to the Hon. H. B. Lygon. To her husband, and to those of her children who survive her, her decease is an irreparable loss—for she possessed every quality which could render

her valuable and beloved as a wife and a mother.—Lady H. Fitzroy. Her Ladyship was daughter of the late Admiral Pigot; and Frances, second daughter of the late Rev. Sir Rowland Wrottesley, Bart.—At Torquay, Devon, the Rev. James Edward Compton, A. M. Incumbent of St. Chad's parish, in Shrewsbury.—Mrs. Frederick James Tolle-mache, lady of the fifth son of the late Lord Huntingtower.—In the 80th year of his age, John Fletcher, Esq. more than half a century the respected Proprietor of the *Chester Chronicle*.—At Wolverhampton, Mary, wife of W. Holland, Esq. of Rodbaston Hall, Staffordshire.—In his 80th year, Jeremiah Hawkins, Esq. of Minsterworth, near Gloucester.—At Boswell House, Stapleton, aged 66, D. Taylor Haythorne, esq. one of the oldest Deputy Lieutenants of Somersetshire.—At his residence, Stockford, Dorset, the Rev. Edmund de Witt, M. A. late vicar of East Lulworth, Coomb Keynes, and Wool; and domestic chaplain to the Earl of Coventry.—In her 76th year, Mrs. Barr, relict of Martin Barr, Esq. of Worcester.—Aged 84, Mrs. M. Amott, of Prestbury, relict of Thomas Amott, Esq. of Earl's Croome, Worcestershire.—At Dunmore House, near Collumpton, Devon, the Hon. Leveson Granville Keith Murray, third son of the late and brother of the present Earl of Dunmore.—In his 82nd year, the Right Hon. Reginald Pole Carew, of Antony House, in the county of Cornwall.—At Southampton, Ann, Countess of Mountnorris, daughter of the late Lord Viscount Courtenay, and sister of the present Earl of

Devon.—At Hyde Park-place West, aged 62, Thomas Charles Earl of Portmore.—The Hon. Philip Henry Abbot, son of the late and brother of the present Lord Colchester.—Lieut. S. Flinders, R. N. of Donington, brother of Captain Flinders, who explored the western coast of New Holland.—In North Audley-st. Lady Harriet Maria Villiers, daughter of the Earl and Countess of Clarendon.—Charles Lamb, the fine-minded and noble-hearted Ella, expired at his house at Edmonton. His death was rather sudden, and was hastened by an accident which he met with a few days before. While taking his customary morning walk on the London road, his foot slipped, and he fell, striking his face against some stones, so as to wound it severely. Mr. Lamb sustained a severe shock in the loss of his, perhaps, oldest and dearest friend, Coleridge, to whom he so recently paid the last tribute of mortality—with whom he has so soon been re-united. No man was ever more loved and honoured in life than Charles Lamb; his audience was fit, though few. His exquisite honour, his refined and subtle thought, his admirable critical powers—the fancy, the feeling, the wit that gave a character to his essays quite unique—

"All were but ministers of love,
And fed his sacred flame;"

that love which embraces humanity—the sympathy that encircles the whole family of life. Mr. Lamb was in his sixty-first year. He has left a memory to which years will but add grace and lustre.

METEOROLOGICAL REPORT.

Dec.	Barometer.		Thermometer		Remarks.		
	Morn.	Even.	Max.	Min.	Day.	Night.	Wind.
1	28.595	28.785	51.5	44	Clouds, sun, showers	Cldy. windy	W. high
2	28.970	29.395	49.5	42	Cloud, sun, wind	Fine	N. W.
3	29.465	29.515	51	45	Cloudy	Cloudy, fine	S. W.
4	29.500	29.492	50	45	Cloudy	Fine	S. strong
5	29.512	29.500	48.5	44.5	Clouds, fine	Cloudy, fine	S. strong
6	29.516	29.505	51	50.5	Cloudy, wind	Clouds, rain	S. W. lt.
7	29.406	29.310	55	39	Clouds, sun, showers	Fine, windy	S. W.
8	29.600	29.858	44	39	Sun, wind	Fine	W. N. W.
9	29.925	29.650	46	37.5	Sun, fine	Rain	N. W. lt.
10	29.710	29.910	44.5	32	Sun, fine	Very fine	N.
11	29.995	29.910	40	33	Fog, fine	Fine	Lt. vble
12	29.897	29.820	46.5	40	Fine, sun	Showers	N. light
13	29.842	29.898	43.5	34	Cloudy	Fine	E.
14	29.930	29.995	39	38	Cloudy		E.
15	30.019	30.020	42.5	42	Damp, cloudy	Fine	E.
16	30.015	29.805	46	43	Sun, clouds	Fine, clouds	N.
17	29.635	29.698	45	40	Sun, wind	Cloudy	N. W.
18	29.764	29.832	44	41	Fine, sun	Cloudy	N.
19	29.851	29.850	43.5	39	Cloudy	Cloudy	N. E. lt.
20	29.810	29.797	43	38.5	Cloudy	Cloudy	N. E. lt.
*21	29.893	29.844	46	34	Clouds, sun, auroral lt.	Fine	N.
*22	29.940	29.916	40	33	Fine, sun	Fine, aurora	N.
23	29.915	29.904	42	34	Fine, sun	Fine	N.
24	29.860	29.800	42	37	Fine, sun	Fine	N.
25	29.770	29.855	45.6	39	Clouds, sun	Cloudy, fine	N.
26	29.918	29.960	43.5	38	Cloudy, mist	Fine	Variable
27	29.920	29.840	44	34	Cloudy	Cloudy	S. light
28	29.760	29.604	39	33	Fine, sun	Fine	S. E.
29	29.495	29.285	48	48	Clouds, sun, rain	Rain	S. W.
30	29.234	29.134	53	51	Cloudy, showers	Clouds, rain	S. W.
31	29.114	29.100	54	42	Cloudy, rain	Wind and rain	S. W.
Mean Max.			45.8	39.7	mean Min.		

* A diffuse Auroral Light on the evening of the 21st, and a very beautiful display of Aurora on the night of the 22nd, commencing early in the evening, and lasting till near midnight.

25 NOV. 1916



CHEAP LITERATURE.

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CRITICAL NOTICES.

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"The Analyst has reached its sixth number with undiminished zeal on the part of the Editor, and increased talent in the contributed articles. This number opens with an able essay on the Power of the Press, which dwells with much eloquence and cogency on the benefits which have resulted to England from the liberty of the Press, notwithstanding that its energies are sometimes misapplied. The claims of the Analyst to public support are vindicated with that earnestness which shews how much the venerable writer of the article has at heart whatever is calculated to promote a taste for the arts, sciences, and literature, and consequently of virtue. To these feelings our own respond—most sincerely do we wish, more for our own sakes, and of the public, than for that of the Editor, although his interests are not indifferent to us, that a provincial work which has hitherto been carried on with an ability that has challenged marked approbation from the Metropolitan Press, and whose abstinence from all Political, Religious, and irritating subjects, is not its least merit, may obtain the support it so amply deserves. The translation of De Lamar-tine's Ode to Napoleon would adorn the pages of the proudest periodical—it is a faithful transcript of the original—of its pathos, its sentiment, its energy, its pure and harmonious diction. We say sincerely, we scarcely remember to have read a more perfect version.—We doubt not, it will find its way into every public print of the country, and be read with melancholy pleasure, for the subject of the poem is one calculated to excite our deepest sympathies.—"The Lover of Beauty" is a story effectively and beautifully told. The introductory observations on the state of the Fine Arts in Paris are eloquent and pathetic, and the description of the pictures so graphic as almost to supersede the necessity of seeing the paintings themselves, to form an adequate conception of them. Without exaggeration this Periodical may rank among the best in the country."—*Worcester Journal*.

"This useful and entertaining Periodical proceeds from the Worcester Press, to which it is highly creditable. London is a sponge, monstrous and insatiable, which impoverishes the Provinces by suction, even the purest streams of literature and science are drawn insensibly within the power of this metropolitan attraction. We were therefore much delighted at meeting in "The Analyst" a champion possessed of courage to assert the capacity of our Midlanders in disseminating the elements of all-powerful knowledge; and, while rejoicing to find the Editor's energetic devotion thus most successfully exercised, we offer him our hearty congratulations and our fervent wishes that his zeal and disinterestedness may prove increasingly efficient in the cause of moral and intellectual improvement; and, at the same time, secure to himself the tranquil satisfaction which is ever gratifying to a generous spirit. No. 5 has just reached us. It excels its predecessors, which were admirable, and equals the best of its competitors. We rest this verdict on the merits of the work itself. Here, then, is a rich and copious entertainment for all tastes; let it be tried, and its excellence will be admitted."—*Derby Mercury*.

"It is no ordinary satisfaction to us to find that in our endeavours to do justice to the sterling merits of this clever and interesting periodical, we have at length succeeded in reasoning the *Sun* into a more just appreciation of its critical papers on Arts and Literature, than our London Contemporary seemed disposed to entertain. The opening article 'On the Moral Power of the Press' is extremely well written. The Essay 'On the Mistletoe,' by Dr. Davies, is replete not only with botanical lore, but with historical and scholastic research; and the whole number such as to justify the praise of the *Sun*, 'in ranking it amongst the most improving of the Monthly Publications.'"—*Cheltenham Journal*.

"We do not recollect seeing such a respectable List of Subscribers to any modern publication as is attached to the one now before us, comprising not only many of the Nobility who patronise it, but the Gentry, of whom are a few whose names, in the Republic of Letters, take rank also as Honourable and Right Honourable. The number for January completes the 1st. Vol. of 'The Analyst,' and contains a useful Index. We conclude this Notice, by recommending those who have not yet purchased their New-year's or Birth-day Presents, to procure for their friends the 1st. volume of 'The Analyst.' We decidedly prefer it to some of the Annuals, which are splendid and elegant, but evanescent as the rich flowers of spring; whilst 'The Analyst' is as an evergreen, on the leaves of which we may, at all seasons, gaze with delight. To drop all metaphor, 'The Analyst' contains much of what its readers may peruse, refer to, and re-peruse with lasting advantage."—*Hereford Times*.

THE
ANALYST;

A
MONTHLY JOURNAL OF SCIENCE,
LITERATURE,
AND THE FINE ARTS.

No. X.



MAY, 1835.

London:
SIMPKIN, MARSHALL, AND CO.,
STATIONERS' HALL COURT;

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TO CORRESPONDENTS.

A Review of the second part of Yarrell's "History of British Fishes," and several other Critical Notices are unavoidably postponed for want of space.

It is requested that all communications sent to the Editor, may be POST-PAID; and Contributions should be sent *early* in the month *pre-ceeding* that in which they are expected to appear.

☞ *The first Volume of "The Analyst," (with Index, and list of Subscribers,) in cloth boards, price 10s. may be had of Simpkin, Marshall, & Co. London, and all other Booksellers.*

A COMPARISON BETWEEN THE CLIMATES OF GREAT MALVERN AND LONDON.

IN the following statement, the details of the climate of London are taken from the Meteorological Tables of the Royal Society, as published in the "Athenæum;" those of Malvern have already appeared in the first and succeeding numbers of "The Analyst," excepting the observations upon the hygrometer, and the temperature of the mercurial column of the barometer, with some other minor details which we have subsequently procured.

On the present occasion we shall confine ourselves to the summer and autumnal quarters of 1834; the former including the months of June, July, and August; the latter, September, October, and November.

TEMPERATURE.

In the month of June, the first month of the summer quarter, the mean temperature of Malvern was 3.8° lower than the mean temperature of London. The mean maximum at Malvern was 66.8° the mean minimum 51.0° . In London the mean maximum was 72.5° the mean minimum 55° . The greatest height of the thermometer during the month was, in London, 86.7° in Malvern, 76° ; the minimum, in the former place, 47.3° in the latter, 43° . The greatest range during the month, for London, 39.4° for Malvern, 33° .

In July, the second month of the summer quarter, the mean temperature at Malvern was 6.5° lower than the mean temperature in London. The mean maximum at Malvern was 67° and the mean minimum 54.1° . The mean maximum in London, 74.7° the mean minimum 59.3° . In London the maximum height of the thermometer was 86.7° in Malvern, 80° ; the minimum, in London, 51.4° in Malvern, 49.5° . The greatest range, in London, 35.3° in Malvern, 30.5° .

In August, the last month of the summer quarter, the mean temperature of Malvern was 5.3° lower than the mean temperature of London. The mean maximum at Malvern, 66.5° the mean minimum 53.6° . The mean maximum in London, 72.8° the mean minimum 57.9° . The greatest height of the thermometer during the month, was, in London, 83.3° ; at Malvern, 75.5° : the lowest, in London, 46.2° ; at Malvern, 43° . The maximum range in the former place 37.1° in the latter 32.5° .

Thus we get for the summer quarter—

	Mean Temperature.	Mean Maximum Range.
London.....	65.2°	37.2°
Malvern	59.8°	32°
<i>May, 1835.</i> —VOL. II, NO. X.		2 F

In the Report on Meteorology, in the first volume of the British Association, it is stated by the author, that "The errors arising from solar and terrestrial radiation in determining the temperature of a place, have not been sufficiently attended to. It is surprising at what a distance a sensible portion of heat is conveyed from soil, and walls, or even from grass, illuminated by the sun; the maxima of temperature are thus generally too great; and from the near contact in which thermometers are generally placed with large difficultly conducting masses, such as walls, the temperature, during the night, is kept up, and the minima are thus also too high." Such an effect as this may be supposed peculiarly liable to occur in London, where the copious and varied reflections of heat from the pavement, buildings, &c., must, in the bright hot days of summer, considerably increase the maximum of the thermometer; and we find from the foregoing table that the mean maximum range in summer is in London 5.2° higher than in the elevated situation where the village of Great Malvern stands.

In September, the first month of the autumnal quarter, the mean temperature at Malvern is 4.0° lower than the mean temperature in London. The mean maximum at Malvern was 64.0° and the mean minimum 49.3° . In London the mean maximum was 67.3° and the mean minimum 54.1° . The maximum height of the thermometer in London was 74.8° in Malvern, 70° ; the minimum, in London, 46.2° in Malvern, 40.0° . The maximum range in London was 28.6° in Malvern, 30.0° .

In October, the second month of the autumnal quarter, the mean temperature at Malvern was 2.2° lower than the mean temperature in London. The mean maximum in London was 58.2° and the mean minimum 46.2° . In Malvern the mean maximum 56.1° the mean minimum 44.3° . The maximum height of the thermometer during the month, in London, was 70.2° the minimum 34.4° ; the maximum, in Malvern, 64.0° the minimum, 35.5° . The greatest range, in London, 35.8° in Malvern, 28.5° .

In November, the last month of the autumnal quarter, the mean temperature of Malvern is 1.7° lower than the mean temperature in London. The mean maximum at Malvern was 47.0° the mean minimum 40.4° . In London the mean maximum was 49.4° and the mean minimum 41.4° . The maximum height in London was 61.0° in Malvern, 59.0° ; the minimum, in London, 33.0° in Malvern, 30.0° . The greatest range, in London, 28.0° in Malvern, 29.0° .

In the autumnal quarter, therefore, we have—

	Mean Temperature.	Mean Maximum Range.
London.....	52.7°	30.8°
Malvern	50.1°	29.1°

ATMOSPHERIC PRESSURE.

In instituting a comparison between two distant barometers, it

is necessary to premise the conditions of the two instruments, and the circumstances of the localities in which they are placed.

In the Standard Barometer of the Royal Society the tube is $33\frac{3}{4}$ inches long; its exterior diameter 0.86 inch, and the diameter of the bore 0.530 inch. The cistern is turned in well-seasoned mahogany, and there is a small cavity in its bottom to receive the end of the tube, which rests upon it; a groove communicates with the cavity, to ensure the free passage of the mercury. Everything has been studied in this instrument to render accuracy attainable with as little trouble as possible to the observer. The diameter of the tube renders the correction for capillary action almost unnecessary. The correction for the capacity of the cistern has been contrived to be $\frac{1}{100}$ of the result above or below the neutral point 30.576.

The barometer at Great Malvern—on the accuracy of which the following statements depend—is a very carefully constructed instrument. The tube is 34 inches long, its exterior diameter .5 inch, and the diameter of the bore .280 inch. The mercury has been boiled throughout in the tube. The cistern is turned in mahogany, and through the bottom the tube passes into a leathern bag firmly fixed to its circumference; a small hole forms a communication between the cistern and the mercury in the bag: at one part of the circumference of the cistern an ivory point is fixed, and a screw acting upon the lower part of the bag will always keep the surface of the mercury just touching this point: thus the correction for the capacity of the cistern is rendered unnecessary. The scale has been duly affixed after several accurate measurements from the ivory point.

In the following statement of barometrical heights, great pains have been taken to apply every correction so that they are strictly comparable one with another—in the Royal Society's barometer the variable correction for *capacity*—and in the barometer at Malvern, the constant one, .055, added for *capillary* action; the diameter of the bore in the latter instrument being so much smaller than in the former, renders this requisite. The whole of the heights stated have been reduced to one temperature, 32° F.*

* That the reader may be put in possession of the practical application of these corrections we shall subjoin the detail of the process, taking the mean height of the barometer for September 1834 in London and Malvern.

London.		Malvern.	
Mean Height.		Mean Height.	
30.114	} Temperature 62.9— — .005 } Correction for capacity obtained thus 30.576 neutral point	29.441	} Temperature 59.7 .055 } Add correction for capillary depression
30.109		29.496	
30.114		— .071	
— .00462		29.425	} Correction for temperature True height at 32° .570 } Add a constant correction for the elevation of Malvern .570 29.995 } and the results very nearly agree
— .083	} Correction for temperature		
30.026			
	True height at 32° F.		

In order to make a comparison between two barometers *absolutely accurate*, it is

In June the maximum of the barometer in London (corrected as before stated) was 30.325, the minimum 29.597; the mean 29.930; the range .728. In Malvern the maximum was 29.746, the minimum 28.953; the mean 29.332, and the range .793.

In July the maximum height of the barometer in London was 30.213, the minimum 29.396; the mean 29.876, and the range .817. In Malvern the maximum 29.665, the minimum 28.892; the mean 29.269; the range .773.

In August the maximum in London 30.109, the minimum 29.593; the mean 29.819, and the range .516. In Malvern the maximum 29.572, the minimum 28.955; the mean 29.245; the range .617.

From this we obtain for the summer quarter—

	Mean Height.	Mean Range.
London	29.875687
Malvern	29.282727

The height of the Worcestershire Beacon is stated, on the authority of Col. Mudge, to be 1444 feet above the mean level of the sea; and from an apparently careful and correct barometrical measurement (the details of which will be found in the first volume of "The Analyst") it appears that the height of the Beacon above the village of Great Malvern is 924 feet; these statements therefore leave 520 feet as the elevation of Malvern: and for this it becomes necessary to add .570 to all the barometrical heights observed there. If the reader should take the trouble of doing this to any of them, he would then immediately perceive the very slight differences in the fluctuations of the barometer in London and Malvern.

In looking over the various daily details from which the foregoing mean barometrical heights have been deduced, the coincidence in the movements of the two barometers was so constant, that we have taken pains to determine accurately this point; and upon comparing the *daily* fluctuations, for a whole month, at the same time at each place, after every necessary correction, the variation between the simultaneous movements of each has never amounted to so much as $\frac{1}{10}$ inch, very generally not more than a few hundredths, a result peculiarly establishing the constant magnitude of the atmospheric movements.

There are many minor circumstances likely to introduce discrepancies in any comparison between the heights of two barometers

necessary that the elasticity of the vapour of the atmosphere should be estimated at each place, by determining the dew-point, and adding or subtracting according as it is higher or lower in the one place or the other.—This would be a very laborious task; and as the correction is always small, it has been neglected. I have made the correction for the *means* of the different seasons hereafter stated, and I find the difference between the barometer in London and Malvern to be, for the summer quarter, only .007 in., and for the autumn .016 in.

distantly situated, and noted by different persons; thus they may not be observed at *precisely* the same period, and this, should they happen to be rising or falling rapidly at the time, would introduce some error; again, at the time of observation, one person may give a tap with his finger to the tube—the other may not, which will sometimes make a difference of some hundredths, the mercury, often adhering slightly to the glass, resuming its proper indication when gently moved or shaken.

From these considerations, (to say nothing of the probable error in printing three different decimal figures thirty times every month) we feel much inclined to conclude that *the fluctuations of the barometer at London and Malvern are simultaneous, and very nearly (quite?) equal*, and, if so, of course in all places intervening.

In September, the first month of the autumnal quarter, the maximum of the barometer, in London, was 30.461, the minimum 29.315; the mean 30.026, and the range 1.146 inch. In Malvern the maximum was 29.877, the minimum 28.740; the mean 29.425, and the range 1.137.

In October, the maximum, in London, was 30.619, the minimum 29.237; the mean 29.996, and the range 1.382. In Malvern the maximum was 30.027, the minimum 28.734; the mean 29.401, and the range 1.293.

In November, the last month of the autumnal quarter, the maximum of the barometer, in London, was 30.379, the minimum 29.141; the mean 29.904, and the range 1.238. In Malvern the maximum 29.883, the minimum 28.586; the mean 29.331, and the range 1.297.

For the autumnal quarter—

	Mean Height.	Mean Range.
London.....	29.975.....	1.255
Malvern	29.385.....	1.242

DEW-POINT.

The atmosphere being everywhere mingled with aqueous vapour of very variable elasticity, and upon which all those important meteorological phenomena rain, cloud, mist, dew, &c., primarily depend, it is necessary, in any comparison of climates, to estimate the changes it is daily undergoing. The hygrometer enables us to do this—particularly the one now well known as Daniell's Hygrometer. In the Meteorological Tables published by the Royal Society, there is a column including the dew-point, every morning at 9, A. M. and we are in possession of similar observations at the same hour made at Malvern, and both determined by the above instrument.*

* It would be almost impossible to describe this delicate instrument so as to be understood without a plate and references; the result is obtained by gradually lowering the temperature of a dark glass bulb, until a thin ring of dew or moisture is deposited upon it. The precise point at which a thermometer, affected by the process, stands when this appears, is termed the dew-point, or point of condensation; which marks with infallible precision, the comparative degrees of moisture and

In June, the maximum dew-point was, in London, 62° , the maximum in Malvern also 62° . The minimum dew-point, in London, 45° in Malvern, 43° . The mean, in London, 51.5° in Malvern 51.1° .

In July, the maximum dew-point, in London, was 69° , the minimum 54° , and the mean 59.4° . In Malvern, the maximum 68° , the minimum 50° , and the mean 55.8° .

In August, the last month of the summer quarter, the maximum dew-point, in London, was 67° , the minimum 49° , and the mean 59.1° . In Malvern, the maximum 64.5° , the minimum 47.5° , and the mean 55.8° .

For the summer quarter—

	Mean Dew-Point.
London.....	56.6°
Malvern	54.2°

Taking the mean temperature of the summer quarter, and the mean dew-point, as data, we are enabled to estimate

	London.	Malvern.
The mean elasticity of the vapour in the air (for the season) ..	0.492 in...	0.460 in.
The mean weight of vapour (in grains) in a cubic foot of air (for the season) }	5.400	5.112

Thus we find, as would be expected, a less quantity of vapour in the higher locality than in the lower during the summer months.

In the month of September, the first of the autumnal quarter, the maximum dew-point, in London, was 64° , the minimum 47° , and the mean 55.8° . In Malvern, the maximum 57° , the minimum 49.5° , and the mean 52.8° .

In October, the maximum dew-point, in London, 60° , the minimum 26° , and the mean 48.7° . In Malvern the maximum 55° , the minimum 37° , and the mean 46.3° .

In November, the last month of the autumnal quarter, the maximum, in London, was 58° , the minimum 34° , and the mean 43.6° . In Malvern, the maximum also 58° , the minimum 28° , and the mean 40.5° .

For the autumnal quarter

	Mean Dew Point.
London.....	49.3
Malvern	46.5

	London.	Malvern.
Mean elasticity of the vapour in the air (for the season) }	0.388	0.352
Mean weight of vapour (in grains) in a cubic foot of air (for the season) }	4.376	3.980

dryness in the atmosphere, and by exhibiting them in degrees of the thermometer, refers them to a known standard of comparison. By means of appropriate tables, the weight and elasticity of the invisible vapour of the atmosphere may be determined.

The hygrometer, when consulted with a view of predicting the greater or less probability of rain, or other atmospheric changes—two things are principally to be attended to, the difference between the *temperature of the dew-point*, and the *temperature of the air*, and the variations that may occur between them. In general the chance of rain, or other precipitation of moisture from the atmosphere, may be regarded as in inverse proportion to the difference between the two thermometers, one marking the dew-point, the other the temperature of the air. An increasing difference, accompanied with a fall in the former, is an almost sure prognostic of fine weather; whilst a diminution in the temperature of the air, and a rising dew-point, portend rain. In winter, when the differences between the dew-point and the temperature of the air are always small, the indications must be taken more from the actual rise and fall of the dew-point, than from the difference between it and the temperature of the air. A sudden change in the dew-point is generally accompanied by a change of wind, and the former sometimes precedes the latter by a short interval; and the course of the ærial current may then be anticipated before it affects the direction of the weathercock, or even the passage of smoke. A rise in the dew-point, accompanied with a fall of the barometer, is an infallible indication that the whole mass of the atmosphere is becoming imbued with vapour, and a copious precipitation may be expected. If a fall in the barometer, and a fall in the temperature of the dew-point, take place at the same time, we may conclude that the expansion which occasions the former has arisen at some distant place, and wind, not rain, will be the result.*

WIND.

In comparing the direction of the wind at Malvern with that in London, we have adopted a very easy, but not perhaps the most desirable classification. The hills at the former place influence so much their force and direction, that it is often very difficult to determine precisely the point whence the great atmospheric current comes; it is not always that there are clouds by which to determine, besides, when these are high, it not unfrequently happens that they are subjected to the movements of the higher currents, and passing away in a direction quite opposite to the wind below. On these accounts we shall denominate all those winds blowing from the south of east and west, vapour winds, and those blowing from the north of these points, dry winds,—

	JUNE.		JULY.		AUGUST.	
1834.	Vapour.	Dry.	Vapour.	Dry.	Vapour.	Dry.
London	23	7	15	16	19	12
Malvern	23	7	16	15	17	14

TOTAL FOR THE SUMMER.

	Vapour.	Dry.
London.....	57	35
Malvern	56	36

* Vide Daniell's Meteorological Essays.

1834.	SEPTEMBER.		OCTOBER.		NOVEMBER.	
	Vapour.	Dry.	Vapour.	Dry.	Vapour.	Dry.
London	15	15	20	11	14	16
Malvern	24	6	22	9	11	19

TOTAL FOR THE AUTUMN.

	Vapour.	Dry.
London.....	49	42
Malvern	57	34

The mean temperature of the vapour winds during the summer, is, in London, 66.8° and in Malvern, 62.4° . The mean temperature of the dry, during the same season, is, in London, 64.2° and in Malvern, 60° . In the autumn the mean temperature of the vapour winds, is, in London 53.4° in Malvern, 53.6° . The mean temperature of the dry, during the same season, is, in London, 49.4° in Malvern, 47° . So that the southerly winds in autumn at Malvern are rather warmer than in London.

The mean temperature of a climate, is generally regarded as made up of the average impression of the sun due to its latitude upon the surface of the globe. But in considering the climate of any place in Great Britain, this statement must be taken with some limitation; according to it, the cloudy days would always be the coldest, but during the winter season in this country, it is not generally so; on the contrary, the south west winds bring up large and copious accessions of vapour of a high constituent temperature, warming the air, and raising the thermometer; at the same time thick clouds form, and everywhere obscure the sky, accompanied very often with large quantities of rain; on the other hand, with north-easterly winds, the atmosphere is frequently freed from cloud, the sun shines brilliantly for days together, but the temperature in the shade is many degrees below the cloudy, damp, and vaporous breeze from the south-west. During the winter we have very frequently observed the maximum of the thermometer at eleven or twelve at night, or even one or two in the morning, a result that can only be due to a change of wind, and the consequent accession of warm vapour. In a clear sky, during the winter, the earth radiates heat, even in the middle of the day, almost as fast as it receives it, so that the temperature, in the shade, during a bright day at this season, advances but little; but warm vapour and dense clouds not only prevent the earth's radiating *its* heat, but bring with them a positive warmth.

The following circumstances must not be overlooked with reference to the climate of this country, for they have a most important influence. On the north is the Arctic Ocean, with its icebergs; on the north-east the frozen shores of Lapland, and the intensely cold mountainous regions of Sweden and Norway; on the east, the vast continent of Europe; on the south, the Atlantic, and the western shores of Europe; on the south-west, the ocean only; and on the west and north-west, the continent of America, and the North Atlantic.

It is a general fact that winds blowing over large tracts of land are considerably colder than those blowing over the ocean. The reasons for this it is hardly necessary for us to explain here, but *the consequence* is that N. E. winds are the coldest, S. W. the warmest; N. W. are intermediate, with a northerly character; the S. E. intermediate, with a southerly character.

From these considerations, therefore, the winds are more accurately divided in the following diagram.



The dew-point can never be higher than the temperature of the air. Supposing, therefore, during the winter in the high regions of Lapland, Sweden, and Norway, the temperature of a breeze to be 20° or 24° F., often doubtless very much lower, air of that temperature cannot hold vapour higher than 20° or 24° . This atmosphere being put in motion, and rushing rapidly to the southern and warmer regions, is constantly acquiring a higher temperature, but passing over only a limited track of ocean, it acquires but little increase in its vapour; the dew-point, consequently, remains very nearly the same.

Let us suppose that such a breeze has reached the temperature of 32° or 34° when arriving at the British Isles, the difference between this and the dew-point (20° or 24°) would constitute a very dry harsh wind, little likely to be accompanied with any deposition; on the contrary, drying up all the moisture it meets with, it would have precisely the character of our N. E. winds in a very marked degree.

On the other hand, a S. W. breeze coming from the warmer regions and over an immense tract of ocean, into the colder temperature of Britain, would soon become cooled, until the temperature of the air was no greater than the temperature of the vapour it bears with it or the dew-point. At this point, and pursuing still its northerly course, some of the vapour must be precipitated, or take the shape of cloud, in either of which cases it parts with that portion of its temperature which was necessary to its invisible

condition, and this is immediately absorbed by the air. The consequence is, that the S. W. breezes, when they reach our shores, bring with them the character of the locality whence they spring, modified by the colder temperature they meet with. *They are mild, and, except in the summer, almost always saturated with vapour, i. e. the temperature of the air and the dew-point are pretty nearly the same.*

The following is a statement of the dew-point, in London, during the summer quarter, with the wind N. E. and S. W.—

Wind.	Dew-Point.
N. E.	55.4°
S. W.	57°

Here we see the effect that might be anticipated at this season. The continued action of the sun for fifteen or twenty hours, in the high northern latitudes, during summer, melts the snow, warms the ground, calls forth a rapid vegetation exhaling large quantities of moisture, and, consequently, we find our north-easterly winds approaching very nearly to the character of the south-west, the mean difference in the dew-point being only 1.6°. In Malvern, from its elevated site, the difference is rather greater—

Wind.	Dew-Point.
N. E.	53.3°
S. W.	56.0°

In autumn, the effect of the sun's rapidly declining elevation, with its certain concomitants—frost, snow, and a cessation of vegetable vigour, begin to shew themselves in the increasing difference in the dew-point of winds from this quarter compared with their south-western antagonists.

In London, for this quarter, the following is a statement of the mean :—

Wind.	Dew-Point.
N. E.	45.6°
S. W.	50.8°

Here, then, the difference increases from 1.6° during the summer to 5.2° in the autumn. In Malvern the difference is as follows—

Wind.	Dew-Point.
N. E.	43.2°
S. W.	50.5°

From these statements it results that S. W. winds are equally *damp* in autumn both in London and Malvern, and there is only 1° difference between them in the summer ; whereas the north-easterly winds are *drier* in Malvern, both in summer and autumn, than they are in London.

RAIN.

To conclude these remarks, it remains only to compare the number of days in which rain fell, in London and Malvern, during the summer and autumn. The numbers below, for Malvern, include all those days upon which it rained, whether much or little ; the

slightest shower between 8, A. M., and 10, P. M., is included; whether the Meteorological Tables of the Royal Society do the same, we are unable to determine. The summer and autumn of the past year, 1834, had some peculiarities with regard to rain, which it is right to mention. Along the south-eastern coasts of England hardly any rain at all fell, and all the inconveniences of a long drought were experienced; whereas, in London, there was no complaint of deficiency; and on the western coast, rain was so abundant that two crops of hay were generally secured, and the autumnal grass was most luxuriant.

NUMBER OF DAYS ON WHICH RAIN FELL.

1834.	June.	July.	August.	Total for the Summer Quarter.
London	11	10	14	35
Malvern	14	12	16	42

1834.	September.	October.	November.	Total for the Autumnal Quarter.
London	8	6	7	21
Malvern....	8	9	9	26

The following are the general results of the foregoing comparison—whether they are applicable in a series of years, more extended observations alone can determine:—

1. The temperature of London, during the summer months, is about 5° higher than at Malvern, partly attributable to the greater effect of the sun's rays among crowded buildings than in the open country, and to the elevation of the latter place.
2. The temperature of London during the autumn is $2\frac{1}{2}^{\circ}$ higher than at Malvern, attributable to the same influences operating in a minor degree.
3. The fluctuations of the barometer are simultaneous, and the daily range very nearly (if not quite) the same.
4. The mean range for the summer quarter, in London, was .687 in.; in Malvern, .727 in.: for the autumnal quarter, in London, 1.255 in.; in Malvern, 1.242 in.
5. The dew-point, during the summer, is $2\frac{1}{2}^{\circ}$ higher in London than in Malvern, and the same in autumn; an effect no doubt arising entirely from the altitude of the latter locality.
6. The temperature of winds, northerly or southerly, is about 4° degrees higher in London than in Malvern, during the summer. The reasons for this are included probably in (1.)
7. The temperature of southerly winds during the autumn is the same in both places, but northerly ones are 2° colder in Malvern at this season.
8. The dew-point, with north-easterly winds during the summer, is 2° higher in London than in Malvern, and 1° higher with south-westerly.
9. The dew-point, with north-easterly winds during autumn, is $2\frac{1}{2}^{\circ}$ higher in London, but there is hardly any difference at this season with south-westerly ones.

LIONEL LACKLAND,

Τῷ αὐτῷ;

OR THINGS CONCERNING MYSELF.

SOAR THE FIRST.

(Continued from page 171.)

THE tones were deep and stern, sometimes rapid, or rising into a momentary passion, then suddenly sinking into the same low, vibratory sound, which at first startled me; even in the monotonous thrum of that voice, there was an energy strikingly impressive. As I listened, my curiosity became unbearable; I resolved to discover the speaker. Fixing the oar softly on the sea-weeded rocks, I pushed off without the slightest noise; still keeping under the shadow of the cliffs, I floated a few yards further down, until I turned a projecting crag, when jumping on shore, I pulled in the head of the boat over the slippery stones, and moved round the crag, gliding under the deepest shadow of the rocks. I crept silently along, until I reached to within a few yards of the cavern, whence the sound had evidently issued, breathless with my exertions, my heart beating audibly against my ribs; I almost repented of my temerity; for a few moments I rested, uncertain whether to remain; my curiosity prevailed, and advancing noiselessly, I drew myself still further under the rocks; there I sat like a timid hare in her form; looking down the cavern, which extended for some distance, I could just make out the forms of two persons, but the light was too obscure to see whether of man or woman. "Forgive him! preach to me of pardon! what! will you, too, join with my own weak, womanish heart, that sometimes pleads against its own revenge; I would that my heart were as hard as these beaten rocks. Forgive him! what him! no, woman, you don't mean what you say; what! pardon him after all"—(here the voice rose with terrific force)—"never, never. Dost thou hear me? what have I been? what am I now? a being once as happy as hope could make me, as fond and kind as a mother to her child; as generous as the undenyng earth; I may say all this now, for to what am I reduced? a creature beneath contempt—a wretch to be pitied and laughed at—ah, ah, ah—yes, yes, I will forgive him. Forgive him, who made me what I am, what *we* are—yes, girl, *we*, *we*, I say, for what art thou? oh God! let me not think of what thou wert; no, no—keep me from that." I saw the man seize his listener by the arm, as he continued, in a low, sepulchral voice—"Dost thou know this place? Ay, here it was, in this same wizard's cave; tears, curses, struggles, that blow; 'twas well

dealt, woman ; and then darkness, darkness, years of maddening grief, madness : oh thou just God ! save me from myself ! But hold, girl, blood pays blood ; ruin for ruin ;—you tremble ; would perhaps betray me ; if I thought”—“ Never, oh never !” sobbed the woman, “ for *ever* have I loved thee, will love thee for ever ; until the pale-leaved Neonin blossoms o’er my grave.” Her deep convulsive sob alone awoke the silence. “ My poor girl ; my poor broken-hearted girl ; weep on, weep on for me, I cannot weep ; my eyes burn, and my brain is withering and scorching, but I cannot weep. In the bright and sunny days of summer ; in the merry groups of the winter fire side ; in the dead of the night ; in the clear beams of the morning ; all alone, with no other sound than the winds, and the roaring deep ; or in the midst of the noisy and busy crowd, I have tried to forget myself ; I could not—no, girl, I could not—like a demon my ruin and misery have ever haunted my scathed mind : but the time is come, I’ve looked for it, prayed for it, maddened for it, and it is come at last ; and shall I pardon him ? If trouble and grief had come upon him, if *he* too had writhed under the anguish of ruined hopes, I could have pardoned him ! but no ; while all has been dark around my course, his pleasures have never ceased, his prosperity never broken, his sun never dimmed ; and now, in the full tide of his happiness, with new hopes, in the ripe voluptuousness of his desires, all hot and teeming of love and bridal joys, his sun shining in the very turn of his bright path, now will I be avenged.” Scarcely audible, the voice of the female muttered in husky tones, “ and is it right to take the avenging in our own hands ? what saith the book, ‘ vengeance is mine.’ ” “ Peace, woman ! prate not to me of God ; with years of gnawing anguish have I purchased the sacrifice. To-morrow the furry begins—Goat’s-moor Furry—’tis long since I flung the ball on the merry evening of the furry, long since I trod, with a light step and a lighter heart, on the brown heather of Goat’s-moor ; I will be there once more ; you too will be there, but remember to leave ere the sun sinks low, and be here exactly at the hour : to be seen near the house might create suspicion, the Kethmen may know you.” “ Know me !” (replied the woman, in a firm, melancholy tone), “ know me ! no, no—thou art not more changed than I am ; grief has not come upon me without leaving its marks ; sorrow and anguish have not lain upon my heart so long without telling the tale ; look at me ! am I then so like myself ?” “ Listen, and interrupt me no more. Be not seen in the village ; track him to the moor, and unobservedly slip the paper into his hand ; if you should not succeed, I will draw him to the tent ; he will certainly be at the furry : I cannot be mistaken ; I will watch him with more fondness than did the mother that bore him ; be here at the moored, the tide will then be slipping off the reef, and the boat moored in the vraun above. Now we part ; remember ! at eleven.”

I saw the man pass out at the other end of the cavern; the woman stood motionless for a few minutes, then pulling a large dark cloak around her, she advanced towards where I sat, passing me so closely as to brush my face with her dress: she walked rapidly on. The murmuring surge tumbling with laughing cadence over the rocky bay alone was heard. I arose, half dead with cold, and trembling with dreadful suspicion. When I arrived at home, there sat Mark, in his old nook at the window, with the same stolid, idiotic expression and contortion of feature; I looked at him with more earnestness than usual; scarcely knowing why, I felt a strange misgiving; he cast a side glance at me, as I gazed on him, then commenced moving his head from side to side, while his features assumed a more idiotic cast than ever; "pssha impossible! it could not be," muttered I, in answer to my own suspicions, "it could not be." "Mark! Mark! what are you thinking of?" He spoke not, but continued moving his head from shoulder to shoulder. "Mark!" said I, "when were you last gull catching in Tolgarrik?" I thought he started; it was mere suspicion. "Tolgarrik," muttered Mark, "Tregagle's King of Tolgarrik; no, no, maun step in Tolgarrik, ah, ah, Tregagle, Tregagle. Hark! Master Linny, he whistles, whew—— There's death in Tolgarrik, Linny." He relapsed into silence and idiocy. It could not be, thought I, and soon I was lost in the visions of sleep—Tolgarrik, Mark, Ellen, Stratton; awaking with a start, the golden sunbeams of the morning glanced through the lattice upon my bed; eleven to night! was it not a dream?

With the privilege of my caste, I must leave for a moment the line of progression, and make a necessary diversion: as my brave old friend, Captain O'Flannagan, once said, when he was obliged to order a retreat, I must "advance backwards." I mentioned a few pages back, that beyond the village the country was rich, and fertile, a fine irregular landscape, spread out as far as the eye could reach; passing over the drear and blighted "Goat's-moor," with neither tree nor shrub to relieve the seeming interminable prairie, the traveller was suddenly surprised by a change in the scene, as unexpected as it was beautiful; there beneath him lay the vale, like a fairy oasis, rich in every tint, the green fields and orchards, like the vineyards of gay France, smiling with fruits. Pomona there built her bower "with interlaced branches mix and meet;" the dew fell upon a myriad of pied blossoms, and the apple might have rivalled the "pleasant grapes of Eschol." I love to recall that beautiful Eden, a spot so often visited in happier days; so rich and voluptuous is the memory of that scene and its associations, that I would not, for the world, behold it now; my enthusiasm springs out of the past—apathy, cold freezing apathy belongs to the present. To revisit those places over which the shadows of past events hang like the mystery of superstition, beatified by time—to behold them now with my

dead, unspeculative eye, would be as though the armies of the locust had alighted there, leaving it leafless and desolate. Within this fairy land, formerly stood a large antique house, called the Trefuses, or the Fortified House; it was a very old structure, and though in many parts falling away, the rough and heavy stone walls still defied the imperishable elements which had assailed it for so many ages. It stood out, from the gay scene around it, like some magician's palace, throwing its gloomy shadow over the laughing flowers beneath; the perennial ivy had crept, with its tensile branches, over the old gabled ends, hiding, in the flattering smile of its green leaves, the progress of decay. This was the residence of Clement Westberry, the father of the fair Ellen. Ellen was an only child; her mother was by birth an Italian. I have heard my grandmother speak with rapture of the beautiful Catherina Brunnati. "Yes, Lionel," said she to me one day, when talking of her lovely daughter, "Catherina Brunnati was a creature to be afraid of; her passions were overwhelming, her beauty seductive. She never loved her husband, and yet she could not live without love; but she died, Lionel, even in giving birth to her child. Oh, it was dreadful and heart-breaking to see those large, dark, liquid eyes, with the film of death upon them, and that voluptuous form cold and sunken. Her little Ellen sprung, like a flower, from her mother's grave. So died the beautiful Catherina Brunnati. Westberry was a jealous man, and after his marriage he relinquished all his commercial engagements, and with a small, but sufficient patrimony, determined to secure his lovely bride from the blandishments of the world. He felt the danger of exposing such a heart to the fascinations for which she languished. She *might* have sinned. She died; and though he felt the loss of his beautiful wife, he was at the same time relieved from the hell of his own fears. But on her dark-eyed, melancholy child, the father ever watched with the deepest solicitude; his love and attention were constantly lavished on his child."

In happy infancy *we* linked our young affections together; we played and sported together—I was her knight, and Ellen was my "ladie faire;" but I must pass over the time of "prattling infancy." Ellen had reached her seventeenth year; her complexion was pale, *vividly pale*; her long, dark, luxuriant hair, tangled in many a wreath and curl, fell wantoning upon her full and swelling bosom; but those eyes! they have no type; it was not in the lustre of those orbs, it was not in the mere form of those visionary eyes, but in the fascination of her look, in the gazy utterance of that love, which overwhelmed her heart.

"There was a light in Ellen's angel face
That made a sunshine in the shady place."

Seldom was it that those gushing lips murmured their music; Ellen thought too intensely to love the vagueness of words. By

rock or dell, as she sat musing in the sunny twilight of evening, her bosom rose, and her lips grew closer, cushioning their soft pillows on each other as though she would imprison her glowing dreams. Ellen was the creature of visionary joys; still was she sometimes playful as the young fawn. As her elegant form flitted by in momentary joyousness, her clustering hair flying from her high spiritual brow, streaming and waving in the wind, she would turn with sudden thought, and glancing her long delicate fingers through the straggling curls, she would murmur with her dulcimer voice some little fairy legend or romaunt, wild and wandering as her own dreams. Like her mother, Ellen was the child of love, intense, exclusive love. Such was Ellen Westberry, full of the hopes of warm affections and fairy vision. To be the bride of Stratton—so exquisite a mind, so sensitive a heart to be the wedded companion of the brutal and unsympathising Stratton—who knew neither the cadences of love, nor the expressions of its fondness! In one accomplishment Stratton excelled; we could forgive the coarseness of his language and the rudeness of his voice, when we listened to the narratives of his voyages and travels, which he could paint with a powerful hand, imparting to trifling events the most intense interest. How often have I and Ellen listened with fearful admiration, looking with timid glance towards the bold bravado, as he made the old room ring again with his noisy vociferation and mirth, whilst we shuddered at the mention of acts which to him were remembrances of jest. As he thus detailed his strange and fearful adventures, Ellen would listen with flattering attention, looking through the lustrous hues of her imagination, upon the scenes he pictured to her mind; and thus necessarily became interested in him, who conjured up, as by a charm, the illusions of romance. But no admiration could long conceal, from a mind so discerning as Ellen's, his low and brutal character. With feminine instinct, she soon distrusted and feared him. There was never yet a villain who could deceive a woman, however simple and unsuspecting, who had not first learnt the art, from the same susceptibility of love; who had not once been like her, the creature of the same affections. Stratton had never known the tremblings of first love, had never toned his voice to its whispers, faint and low. Of coarse and boisterous health, with as little inflection in the movements of his sturdy and muscular body, as irregularity in the pulsations of his heart, he had grown up alike insensible to love or fear. The roar of the ocean had been his only music; cooped up within the narrow compass of a few yards, his ideas had advanced but little beyond himself. Such was the man who declared a passion for the passionate Ellen. Clement Westberry, never supposed, poor man, never suspected, that we had lived, not as children, but in the deep absorbedness of a first love. Yes, first love; the only love that is worth remembrance, the only passion of our natures which is the pure, free-will

offering of the heart, unadulterated with a tincture of the selfishness of manhood. But however blind Mr. Westberry might be, his accepted son looked on me with an eye darkened by suspicion; and if he affected to despise, he was still weak enough to fear me. With all the jealousy of a boy, I beheld Stratton with hatred and alarm: his audacity intimidated me—his self-confidence subdued me; I crept about the fields like a proscribed man. I looked darkly and suspiciously on Ellen, nor did her tears awaken my confidence. Stratton persecuted me in every possible way; my slight and pliant body was so infinitely weaker than his, that he felt secure from retaliation; he loaded me with the bitterest taunts, insulted me; scorned me—oh God! I could have died to have buried my hand in his heart's blood, and tugged it hot and palpitating from his dastard breast; but I bore it—silently, tearlessly, unrevenged—but——

To the demands of her father, Ellen was so habitually compliant, so submissive and gentle, that he never anticipated a contradiction, or even an aversion, to any of his plans. Mr. Westberry was constitutionally cold, and those affections which he exhibited in his youth seemed to have died with the object of their elicitation; he loved his daughter, all his thoughts and schemes tended towards her; he wished to make her happy, but then her happiness must proceed from himself; her own election was a thing never anticipated; and, therefore, when she, for the first time in her life, opposed a measure so desirable in his own settled judgment, he felt surprised and hurt at the novel event, and, like a true autocrat, determined at once to sacrifice every thing to his prerogative. Ellen heard her father with meekness and sorrow; but as he grew violent and resolved to enforce the marriage, she became bold, and in spite of entreaty and rebuke, pleaded the sacrifice as too great; she could not, would not, perjure her soul before the altar of Him who abhorred a broken vow. Her father contended in vain; the more Stratton importuned her the more she scorned and hated him; he listened to the avowal of her disgust, and still the insensible wretch paid his loathsome suit to her in beastly apathy. A year had nearly rolled away, and still Ellen was as firm and resolved, her father as bitter and merciless. Stratton visited her daily, and was daily repulsed.

It was on an evening in May, after having seen Stratton, who left her highly incensed, and swearing the bitterest curses, Ellen met me at a spot called "Tachen Glaz," or the Green Place, where we had idled in sweet looks through many an hour; a few old monumental stones raised their grey heads above the long luxuriant grass, surrounded by the clustering branches of venerable trees, forming a circle round this grass-grown temple. Here we met; we sat together upon the little velvet mound, under the "shade of melancholy boughs." We spoke not: as I gazed on her pensive features, I was alarmed at the change; her face was

wild and wan, her long dark hair, once so bright and flowing in loose curl, now hung down in neglected tangles, shadowing her pale cheeks like a dying nereid's veil; that lustrous eye was sorrowfully cast down; her lips, those beautiful lips, were thin and pale; a light and gauzy scarf fell loosely round her elegant form. How indescribably lovely! I had looked on her when beaming with health and happiness; her frame expanding with joyous emotions, and her eye dilated and brilliant as the startled antelope's; but oh, she was less lovely, to me, than on that blissful eve, when we met in that lonely place. As I gazed on her, her eye fell upon mine; we looked on each other—and in that long absorbing glance our souls languished in their embrace, and still we looked and spoke not—love absorbed all thought, suffused every sense. I drew her to my still heart, and there reckless, we abandoned ourselves to the bliss of that short moment; she raised herself from my arms, the loving, all-confiding Ellen; she felt no shame for that one chaste embrace; but blushing even in her joy, she leaned on my light reclining body, and looking in my fair face, with a melancholy smile, "Lionel, at last I am resolved—we will not part, Lionel." She raised herself from me as she continued—"to-day he swore a terrible oath that I should next week become *his* bride. I shudder at the thought. Yes, Lionel, to be the wife of Stratton; move not, but hear me. I reasoned with him; prayed to him; Lionel, I bowed my knee as I would to my Maker; and there humiliated and agonised besought him to spare me. He was dumb—my father! he was cold as a marble statue; he looked on me—oh God! that look! thrust me from him; swore, nay, Lionel, my father almost cursed me; do I deserve to be cursed? Oh, Lionel! I have called on the spirit of my mother, in the dead, silent hours of the night, when the cold moonbeams lay flickering on my heavy breast; I have prayed, called on her for help, but she came not; even in hope she left me no remembrance but sorrow; I am alone, helpless"—"Helpless, Ellen!" I replied, "my own love! my Ellen! does no one love you?" "Oh! yes, yes, Lionel (speaking with great rapidity), I am loved! I will not give you up. Lionel, do you love me?" "Ellen!" "Well, well, I am almost mad, Lionel; I almost fear you should not love me, but you do—you do love me; take me, then, Lionel, I am all your own." She threw herself into my arms, clasped me to her breast—"Take me, I will wander with you, suffer with you, struggle with you, labour for you, worship you, I will be all to you, Lionel;" she wept hysterically, in the deep agony of her soul. I was satisfied—her tears were dried, her heart stilled—we parted. When to meet again?

The superstitions of the Cornish peasantry seem to be compounded of Druidical, Pagan, and Christian mythology. In the progression of time, the fables of Roman Paganism were incorporated with Druidicism, and the superstitions of Christianity

modelled on both; thus the poor people retain a jumble of tradition, which is difficult to disconnect from the dreams of either Druid, Pagan, or Christian. The "Kornuath Keth" have their charmed stones, wands, rings, and braids; Brownies, Spizzies, and Podrocks. The watery mistletoe is still cut with mysterious ceremony, though not with the golden hook or knife; "The Festival of Flowers," from the "Flora" of the Romans; "the Blessing-day," and the "Galuan," or the "eve of light and joy," with a host of other strange observances too numerous to detail. But among all their festivities, that of the "furry" held on "Goat's-moor" was one of the happiest, and perhaps the most ancient.

The "furry," or parish wake, is to be traced as far back as the Saxons, who instituted it as a religious ceremony. The furry was held on "Goat's-moor," a wild, uncultivated waste, covered with short moss or peat; on one side the moor was bounded by black, shaking bogs; not a house or tree was visible for miles. The eye was interrupted only by a group or two of large Druidical stones; in the dim twilight, as the traveller wended his solitary way over the heath, he might have imagined them the mighty shades of past ages, hovering over the sacred spots of their religious ritual.

It was on a day in the beginning of June, the air sparkling like a mirror with the reflected rays of the culminating sun, burning in the blue laughing sky, when crowds of persons of all classes, dressed in their gayest attire, were hastening over rock and dell, and round on every side in happy exultation of the festivities of the "furry" on the wide "Halgaver." Not a breath of wind brushed off the sea; even the light duck "sky scraper" on the "top masts" fluttered but a moment, and then dropped lazily against the slender "fore-top," peering with their silken pennons into the light grey sky. It was a sweltering, burning, gaspingly-hot day, and well I remember it, though I would, if possible, forget it, as a lost page in my life. It cannot be. There was the rough, leather-faced "tar," swearing it was as fiery as the Tropics; the weather-beaten fisherman, shuffling along with his ruddy, laughing "spalleen" (daughter), her lover roaring and talking by turns, now cracking his scurvy jokes on the more quiet and grave in the motley groups, then flourishing his pliant baz (staff) in recognition of some galloping cavalier, mounted on his long, shaggy-haired pony.

On that eventful morning, although my mind was bewildered with suspicions which my dreams had magnified into the most horrible events, forced on by a supernatural compulsion, I startled like a guilty thing from my bed, even before the merry birds had carolled their first note of praise. I had to meet Ellen; to triumph over Stratton—it was sufficient—with the most coquettish care did I arrange my dress; and if my face looked paler than usual, and my long chesnut locks hung down more wild and negligent, still (I remember) it was with a feeling

of pride, all perfect, self-satisfied pride, that I glanced my large blue eye ever and anon upon the reflection of my tall, slight, and elegant figure. Ye gods! I was supremely happy. Poor Stratton! I muttered, as I gave a last glance upon the old carved mirror, "his face is shockingly red!" but his hair—what hair, said I, pushing my fingers through my thick locks. Seizing my fishing-cap, I sprang into the parlour, and kneeling down on one knee, as I had ever been taught by my romantic, high-minded dame, took her hand and kissed it twice most reverently. The good old lady bent over me and kissed my forehead. "My Lionel!"—ere she could utter more I started up, and throwing my arms around her, pressed her trembling lips—"Farewell, dear mother!" and darted out of the room. My heart was full! I could not trust myself to utter or hear another word. According to appointment, I joined Ellen and her father at a spot called "Lan-Kelly:" Stratton was from home, but intended meeting them on Goat's-moor.

The roads were crowded with people, either advancing singly or in groups of from five to twenty, according as family connexion had extended family community; there were few gigs, less of carriages, and as for the lazy looking cabriolet and sparkling tilbury, dear, gentle reader, you must substitute the unobtrusive "plazzy" (or cart), of which there were some of all sizes, creaking and groaning on their heavy axletrees, full of laughing brouzy girls, perfect amazons in hand and tongue.

In the evening we arrived on the moor, which presented a most interesting appearance; its smooth and unbroken plain dotted with the white tents, yellowed by the light of the westering sun, while the dark shadows of peasant groups, in busy activity, or as quiet spectators, rose in strong relief to the white tents, still more beautifully varied by the light fluttering dresses of the women, arrayed in all the colours of the rainbow, with their long flying ribbons and bright coloured shawls and kerchiefs: long before we beheld the gay, spirit-stirring scene, the noise and clamour of the multitude broke upon the ear. Ellen was amused with the scene; every where around her were laughing faces, little Love ran loose among the merry maidens, who seemed on this occasion privileged to play the romping coquette with their half-abashed swains, though now and then a rough banging kiss on the ripe lips of some screaming damsel, frightened the posse into a momentary sobriety.

"Well done for Pannek! he knows how to give a Cornish hug, doesn't he, Vatheens?" said a wicked-looking little pedlar, who was hawking his wares about, provoking the unwary girls with the glitter of his rings, brooches, and "charmed braids" for true-love knots, and many were the hard-earned shillings the rogue bore away that night from Goat's-moor. "Cornish hug!" said a strapping fellow, who had heard the pedlar's remark—"ay, Mister Smallsman, and thern another can give Cornish hugs to pretty Vatheens, or thaivish pedlars too, oon ther haun a mind

to thry the fall." "Oh! my Voon, what! you would not lift a leg of an old worn-out pedlar, or make him *back* the ground before his final end; no, no, Voon." "Aih, aih, Smallsman, an thra away your fase goud and lying dramers, such as youn ha there," striking his box with his thick staff until the trinkets rattled again. The old man took the alarm, and partly closed the lid; muttering a curse or two between his teeth, he moved quickly away from his unfriendly company, who all began to look with suspicious eyes upon his condemned box. "I know the chate, tho' he has put on that big black patch over his eye; tint na long since he sauld me a brooch for goud that wann none but kenneth-cole (copper). I mind it an well, for it kept my pocket cold for a month." A loud laugh from the by-standers at the expense of the poor dupe did not tend to lessen his irritation; lucky it was that Mister Smallsman departed when he did. Ellen and I moved slowly on, her father stopping with different persons, saluting some with a passing word, or loitering a few minutes to ask after family or agricultural business; we sauntered on, listening to the quick-witted maid and the loud laugh of the discomfited churl. The tents were principally occupied as drinking booths and for refreshment; some were filled with stalls, loaded with cakes and ripe gushing fruits; generally not far distant from a tent, the games were held—wrestling, back-sword, throwing the "mottoed ball" (a very admirable and exciting game, long celebrated in Cornwall)—while in two or three more retired spots the fortune-telling crone was "realing the cards," a circle of girls around her, waiting, with breathless anxiety, the destiny of the "fall." Above all people in the world, the Cornish are credulous of the supernatural, and they will wait the chance of a "fall" with the most implicit reliance. Ellen leaned on my arm; her father walked behind in earnest conversation with Stratton, who had just appeared; the sun was sinking lower in the horizon, and the evening breezes blew rather chilly across the moor.

The shouts of the victor wrestlers rose up every now and then even above the unremitting din of voices—the girls witnessed the games with the most absorbed attention, now clapping their hands in exultation, or waiving their kerchiefs for the "best throw." Away flew the "mottoed ball," bounding from one to the other in quick succession, until it was caught and borne away by the successful side. We had advanced towards a small tent, from which the noise of laughter was unusually loud, and yet occurring but at intervals; as we drew nearer to the entrance, we could perceive a number of young men and girls crowding round a table, on which was a large blue slate, famed ages back for its prophetic properties; on the table also were a small box compass, a pack of cards, and a number of "plaited braids," which the Kenneth peasant wears as a charm against sickness and misfortune; there was also a heap of small round blue and white pebbles, called "dreamers." Standing over the table was

the pystrior (or fate-man); he was a tall, gaunt figure, his long skinny face shaded by a large hat with flapping breeds; his eyes were large and vivid; whenever he looked on you, his eyelids were drawn up close under his shaggy brows, exposing the whole eyeball, glaring upon you with a long, fixed stare; his long, black hair streamed over his pale, haggard cheeks, while his thick bushy eye-brows meeting over his sharp sabre-like nose, altogether gave him a terrific expression. His coat fitted tightly round his body, but the sleeves were cut off a little above the elbows, exposing his large sinewy arms, and thus allowed him the full play of the arm in his manual deceptions; over his coat he wore a large ulair or mantle, made of a thick, hairy material. Such was the pystrior.

"Rafaria, Rafaria, a miracle! a miracle!" cried he, turning over the cards and running them with singular quickness along the table; the crowd waited in silence; the poor wench whose destiny he was "wearing" stood in trembling anxiety for the result; he drew the girl aside, and whispering in her ear, she quickly left the tent without noticing her inquisitive companions, who seemed to think every "fate" but their own a matter of jest. Far back in the tent, I thought I saw the face of a person I was familiar with, but being in the shade, could not at first ascertain who it was; a gleam of light falling on the face, discovered the dark, mysterious eye of Mark watching intently the motions of the pystrior. I know not wherefore, but the moment I looked into this tent I felt an emotion I could not overcome or account for. I did not think of Mark, but no sooner did I cast my eyes on the fate-man, than I felt the same fatal curiosity which made me an auditor at Tolgarrik cave. I seemed borne along by concurring circumstances over which I could have no controul; a power unseen, led me from point to point—like the doomed boat beating with every wave towards destruction, or as the loadstone attracting the steel by an invisible sympathy. In every instance of this unhappy event, I hung back with a dreadful presentment of evil, and yet still I went on even in spite of my own disinclination. As we stood at the entrance of the tent the pystrior fixed his eyes on Ellen—she shrunk back—he extended his arm over the table, and with a low, melancholy tone, addressed her—"Lady, lady, the star-light is dim, and the shrouded moon is wan—Hark lady—

"The waves are tumbling on the sea,
And lash the rocky side;
The boat is brimful in the cove,
The oars on the rocking tide:
Sad sits a maid beneath a cliff,
And eyes the rolling stream;
Her lover promised to come,
She saw his boat (when it was evening) on the lake,
Are these his *groans in the gale*?
Is this his broken boat on the shore, lady?"

"Lionel, I faint, lead me, lead me;" I hurried her out of the tent; the air soon restored her. "Lionel, what did he say?" gasped the affrighted girl—"did you notice his look, how horribly dark and mysterious—I shudder at it." I laughed away her fears. "Well, well, Lionel, I am not well, and indeed I could cry with fear; but Lionel, you speak not, perhaps you wished to remain." "No, no, Ellen, not for the world would I keep you there; we will find your father, and then perhaps you will excuse me for a few minutes, as I saw a person in that tent with whom I wish to speak. Come, come, my love! do not be alarmed at shadows." "Ah, Lionel! the shadow which I feared was on my own mind, 'twas not the man. No, no"—"My own love! remember next week, and then for ever we shall put an end to fear—remember 'Tachen-glaz,'" said I, as I pressed her nearer to my side; she pressed my hand. Mr. Westberry joined us, to whom I consigned my affrighted Ellen. "Have you seen Lieutenant Stratton?" inquired Mr. Westberry somewhat sharply, "it is half an hour since we parted, if you see him, Sir, tell him we shall proceed slowly homeward. Come, Ellen—Sir, good even to you." "Lionel, dear Lionel!" whispered Ellen—"haste my love; stay not Lionel," said Ellen, gazing with unutterable fondness upon me. "Ellen." "I come, Sir." "Dear Ellen, farewell!" She left me. For some minutes I stood as if frozen to the ground, even as dead as those distant, monumental stones. "Farewell! did she say farewell!—Ellen, my love—oh God! shield me—be to her a preserver." I looked over the bleak moor, I could just see Ellen's light dress fluttering in the fleeting wind—now they are gone—gone sighed the wind. I turned slowly towards the pystrior's tent.

(To be continued.)

TO A LADY.

CHILL, stormy clouds will veil the fairest sky;
 Hopes in their fragrant blossom droop and die,
 And tears—dark tears—bedim youth's brilliant eye:
 Roses, ere fully blown, desert their spray;
 Light, newly born, fast fleet in shades away;
Old friendships weary'd, root and branch decay:
 Truth vanish like a far-off sail at sea,
 Time teach the bosom infidelity;
 Earth fade, and ocean's waves no longer be.

But, fair and pure one! be it thine to share
 All things that ever-changeless beauty wear!
 Roses whose buds no thorns in secret, bear;
True friendship flourishing in verdant prime;
 Love that, illumed with radiant joy, sublime
 Endureth, loyally, through tide and time;
 Tears born of bliss,—thoughts bath'd in golden light,—
 Transports that faith and Christian deeds requite
 Ere Eden's bow'rs salute thy raptur'd sight.

EDWARD.

ON MAKING THE ENGLISH GENERIC NAMES OF BIRDS CORRESPOND TO THE LATIN ONES.

THIS is a department of nomenclature to which systematists have paid less attention than to any other. Perhaps professed ornithologists are not aware of the confusion which is created, and the difficulties which are placed in the way of the student by this unscientific mode of proceeding, as they themselves have the subject at their fingers ends. New genera are daily forming, and yet the old names—many of which were even then improper—are still retained. For instance, we often meet with the following English and Latin names in standard Ornithological works:—Meadow Lark, *Anthus pratensis*; Gold or Thistle Finch, *Carduelis elegans*; Bull Finch, *Pyrrhula vulgaris*; Java Sparrow, *Tringilla oryzivora*; Hedge Sparrow, *Accentor modularis*; Grey Plover, *Squatarola cinerea*; Meadow Crake, *Ortygometra crex* (*Rallus crex*, Linn. and *Gallinula crex*); Willow Wren, *Sylvia trochilus*; Water Ouzel, *Cinclus aquaticus*; and many others that might be given. In all the above instances there is a great and unaccountable inconsistency, which might be easily avoided with a little care. Of all English generic names, *Wren* is the commonest; thus we have the Common* Wren (*Anorthura communis*, Rennie), the Golden-crested Wren (*Regulus auricapillus*), the Wood Wren (*Silvia sibilatrix*); which birds belong to three entirely distinct genera.

If the proper English generic names were applied to every bird, how greatly would the acquisition of this fascinating study be facilitated! Are not the names Meadow Pipit, Java Finch, Hedge Dunnock, Grey *Squatarole*,† Willow Warbler, European‡ Dipper, Bearded Pinnock (*Calamophilus biarmicus*, Leach), and Snowy Longspur (*Plectrophanes nivalis*, Mey), infinitely preferable to those given above? For if an intelligent student finds in a book "the Bearded Tit (*Calamophilus biarmicus*, Leach)," he will ask, and with justice, how *one bird* can be in *two genera*; and no satisfactory reason can be given. By using the names which I have given above, this is remedied, and all becomes plain and easy to understand. It seems surprising that systematic ornithologists should not have perceived, long before now, the impropriety of taking a bird out of a genus, and still retaining its former English generic name. Professor Rennie (*Architecture of Birds*, p. 236) goes so far as to say that the name *Reed Bunting* is inappropriate for *Emberiza schæniclus*: it is difficult to determine to which part of it he objects; but

* The trivial term *common* is objectionable, as being vague and inexpressive; but in some instances it is difficult to find any other.

† Selby says he retains the name *Grey Plover* because he wishes his *Illustrations* to be a popular work—as if giving proper names would render it less popular.

‡ This is rather an indefinite and unmeaning specific name.

this is quite immaterial, as he is certainly wrong either way; for the name *Bunting* cannot be inappropriate, *Emberiza* being the only Latin generic name this bird has received, and *Reed Bunting* is the most expressive that could possibly be found, as it constantly nestles amongst reeds, and is mostly found in wet, reedy places. And, moreover, if the English names be inapplicable to this bird, so must the Latin be also: to these, however, the worthy Professor seems to have no objection. But Rennie's names are beneath comment, as may be seen by referring to his edition of the *Ornithological Dictionary*. For instance, he has given *Motacilla lotor* to the Pied Wagtail; as if it might not be applied with equal propriety to all the true or typical Wagtails. Why not call it *M. maculosa*? Linnæus's name, *M. alba*, is of course absurd, and yet all ornithologists since his time have adopted it. *Nyctichelidon Europæus* is another name proposed by this "Bare-faced Crow (*Corvus nudirostris*) of King's College." This name is no less faulty than the other, as this bird is no Swallow. The best in my opinion which has been proposed for this bird is *Vociferator Europæus* (mibi). If any one can find any objection to this name, I shall be much obliged to him if he will mention it.

If naturalists have any regard for order and symmetry, I would advise them no longer to disgrace their catalogues—which it should of course be their aim to render as complete and faultless as possible—by the loose and unscientific practice of giving different English generic names to birds belonging to the same genus. The difficulties thus put in the way of the student are evident; if, for instance, a student who has made but little progress in the science, were asked to what genus or genera the Hedge Sparrow and House Sparrow belong, he would probably answer that they are both in the genus Sparrow (*Passer*, auct.), although so far is this from being the case, that they are not even in the same family—the one belongs to the Fam. *Sylviadæ* (Vigors) and the other to the *Tringillidæ* (Vig). But, if the same birds were called Hedge Dunnock and House Sparrow, he would at once perceive that they could not possibly belong to the same genus.

I am extremely happy in being able to mention Temminck and Stephens amongst those writers on ornithology who have attended to this important part of nomenclature. Even these have not always succeeded, but they have got the principle, and that is more than half way towards being right. Where Buffon has given but one name to a bird, Temminck invariably has both, as in the case of the Grey Snowflake (*Nyctea cinerea*, mihi; *Strix bubo*, Linn.; *Bubo maximus*, Sibbald): Buffon merely calls it "Le Grand-Duc," but Temminck "Le Hibou Grand-Duc." The latter is an excellent systematist and a tolerable field naturalist—the former was merely an eloquent writer.

NEVILLE WOOD.

Foston Hall, Derbyshire, April 9, 1835.
May, 1835.—VOL. II. NO. X.

LECTURES ON GEOLOGY,

IN ILLUSTRATION OF THE STRATA IN THE NEIGHBOURHOOD OF
BIRMINGHAM.

DELIVERED AT KIDDERMINSTER, BY OGIER WARD, M. D.

THE Lecturer, after a few preliminary remarks upon the course he intended to pursue in treating the various subjects that would be brought under the notice of the Society, observed, that in the general thirst for knowledge which characterized the present age, it was quite unnecessary to defend the study of Geology from the ridicule of those who set no value upon its acquirement. He then proceeded to impress its importance upon his hearers, by alluding on the one hand to the losses that had been sustained by many persons in vainly seeking for coal among the oolites, for gold in the yellow mica of Malvern, and for copper in the chlorite of Nuneaton; and on the other hand to the discoveries of tin in Brittany, of coal in the Holy Land, and more recently of an inexhaustible vein of plumbago on the Welsh estates of a gentleman in Birmingham. Again, the endowment of Professorships of Geology in our Universities and Colleges, and the attention that this Science has met with from the British Association, and from the various Philosophic Institutions of the country, prove that it is at length beginning to hold that place in public estimation which its practical utility, and the interesting nature of its details, may fairly claim for it.

The preference of the civilized nations of antiquity for speculative studies prevented them from paying much regard to geological phenomena; and their peculiar mythological notions induced some to refer them to alternate destructions and restorations of the earth's surface; while others who believed in the eternal existence of the world from past to future time, saw nothing more in these changes than matters of daily occurrence, whose effects were proportional in their magnitude to the lapse of time since their commencement. This latter is the opinion of one set of modern geologists.

Where Christianity prevailed, the Noachian Deluge offered an explanation, apparently so easy, for the appearance of the action of water upon high mountains; and the ignorance of Natural History prevented any attempts to determine the relative ages of strata by distinguishing the remains of extinct from those of recent animals, that we must not be surprised at the opposition Fracastors met with, in the 16th century, when he asserted that a bed of shells found under the city of Verona, must have lived and died in that situation.

The controversy respecting the origin of these shells gave a stimulus to the study of geology in Italy, which extended from thence into every country in Europe; but it was not till towards the end of the last century that just notions began to be entertain-

ed of the arrangement of strata, and the mode of their formation, from the labours of Pallas, Saussure, Werner, Hutton, and Smith. The Geological Society, which was established in 1807, having assumed it as their maxim that there were not yet sufficient data for general conclusions, or "Theories of the Earth," put a stop to the violence of the disputes between the Huttonians and Wernerians, and turned the attention of both parties to support their opinions by the observation of a greater number of facts.

The Lecturer next exhibited a geological map of England, upon which he pointed out the various strata ranged in a curvilinear form round the primary mountains of Cumberland and Wales; and explained, by sections in different directions across the kingdom, how the inclined strata, by their "out crop" at the surface, produce corresponding changes in the appearance of the soil.

As several groups of these strata, or formations, have a greater degree of relation to each other in position, structure, and contents, than to those which follow them in the series, they have been divided by geologists into certain classes. One arrangement makes four great divisions of the strata into primary, transition, secondary, and tertiary; but as this mode involves an absurdity in making an interval between the primary and secondary rocks, a new classification has been proposed, which taking the coal as the middle of the series, determines the rest by their position with respect to it. Thus the primary corresponds to the inferior, the transition to the submedial, the medial is the coal, the secondary is the supermedial, and the superior is the tertiary class, which last Mr. Lyell again divides into eocene, miocene, and pleiocene strata, according to the lateness of their deposition.

Notwithstanding the infinite variety of forms and colours that the rocks, stones, and earths assume which compose these strata, almost all of them, except the metallic ores, consist of the following minerals, silica, alumina, lime, magnesia, potash, and iron oxide. If, therefore, we take granite and marble as examples of the combination of these materials to form primary rocks, we can account for all the newer formations, except the coal, by their disintegration and reconstruction under different forms. Granite consists of quartz, felspar and mica, and marble is merely carbonate of lime; and both are easily corroded by the action of the atmosphere and water. The quartz of the former is converted into sand, and the felspar and mica into ferruginous clay; while the marble is reduced to chalk. The claim of the primary rocks to this appellation rests upon their inferior position with regard to the other strata, their crystalline structure, and their not containing any organic remains. By the Wernerians they were considered to form the floor of the earth, upon which the succeeding strata have been deposited; and by the Huttonians, as old materials worked up again into new forms by volcanic heat. The transition rocks were so called, from their passing by almost insensible gradations from the crystalline structure of the primary strata, into forms decidedly indicating a mechanical origin by subsidence from water;

and some of them contain abundant organic remains in a fossil or petrified state.

The circumstances which guide us in assigning certain relative ages to different strata, are, the order of superposition, the difference of structure, the including fragments of other rocks, and the containing petrifications of a greater or less number of organized beings analogous to existing kinds. It is a remarkable fact that the order of succession of stratified rocks is never changed, although some of the strata may be absent; but rocks of igneous origin are often found piercing through the superincumbent strata, so that with regard to these the criterion is not unerring. Structure is not a more certain guide than superposition, for although crystallized rocks are usually older than sedimentary deposits, yet shale and lias limestone have been converted into crystalline marble and garnets (a primitive mineral) by their vicinity to granitic and volcanic dykes, the impressions of the shells they contained being all obliterated. It is evident, however, that a rock containing fragments of other strata must be of more recent date than these; and by a comparison of their fossils we are enabled to identify mineral masses from opposite sides of the earth as belonging to the same era.

Modern petrifications are not really a conversion of the substance into stone, but are merely incrustations of carbonate or sulphate of lime, or of silica, upon any body submitted to the action of water in which these minerals are dissolved. In this manner are formed petrified bird's nests, in Derbyshire, and moss agates round the basins of the boiling springs in Iceland, as well as the medallions of San Filippo, in Italy. In a true petrification, on the contrary, the substance of the body is carried away, while solid matter, usually crystalline, is deposited in its place. In some cases, however, the substance is removed, but nothing is deposited, so that a vacant space, containing an impression of the body, only is left.

The strata of the neighbourhood of Birmingham occupy a space in the geological series from the old red sandstone to the lias, but their description forms the subject of the succeeding lectures. It is in the lias that the remains of those huge and strangely-formed reptiles, the ichthyosauri and plesiosauri, first appear, and in the contemporaneous formations of Germany that paradoxical ball-like animal the pterodactyle is found. In Portland Island, one of the secondary formations, the curious phenomenon is observed of perfect plants allied to the cactus and palm tribes, standing erect in a petrified state, with their roots fixed in a kind of soil, and their trunks piercing into the superincumbent bed of limestone. The occurrence of round flint stones in chalk, the last of the secondary group, has been recently accounted for by what has been observed to occur in potters' paste (a mixture of clay and ground flints) when allowed to settle. The flint separates from the clay into nodules, which soon become exceedingly hard, and would probably assume a crystalline form under favourable circumstances. The chalk forms the limit of the secondary strata by the total differ-

ence of its fossils from those of the succeeding tertiary group, in which shells are found identical with those now inhabiting the earth. Some of the tertiary strata are reared in a vertical position in the Isle of Wight, and others are laid horizontally upon them. The upper part of Headen Hill, at 400 feet above the sea, is a stratum of fresh-water shells, 55 feet thick. The shells of the Suffolk crag, the latest of the British tertiary strata, are so perfect that they have hardly lost their colours, and yet most of them are now only found in hot climates. The stones of which Stonehenge is formed belong to the same formation as the crag.

All these formations, except the primary, and a few of the transition groups, bear most evident marks that they were formed by the slow and gradual deposition of their materials upon the bottom of lakes or seas; but over the whole of them we find extended a bed of gravel, consisting of rounded fragments of the whole series, even of the primary strata, and containing the remains of recent as well as of extinct quadrupeds, not petrified, and but little altered in consistence. From the almost universal extent of this stratum over the world, and the internal proofs it bears of its recent origin, geologists are generally agreed in referring it to the period of the Noachian Deluge, and have given it the name of diluvium. Other gravel beds, of partial extent, and referable to causes still in action, are termed alluvions.

In this country, some of the most remarkable effects of diluvial action are exhibited by the deep vallies which have been excavated near Bath, and by the immense deposits of gravel, and granitic boulder-stones which are spread over the midland counties from their parent rocks in Cumberland. In like manner our eastern shores are covered with fragments of Norwegian rocks, which have also formed the source from whence the blocks which strew the plains of Lower Germany have been derived. Similar masses, of enormous size, have been torn from the Savoy Alps, and borne by the rush of retiring waters across the Lake of Geneva, have rested on the secondary strata of the Jura, 2500 feet above the level of the lake. The bones of the mammoth have been found at Santa Fe, 8000 feet above the sea; and the remains of horses and deer were collected by the Tartars at twice that elevation in the eternal snows of the Himmalaya Mountains. It is impossible for us to do more than conjecture the causes that have operated in producing such a flood; but from the scores, or scratches, on the surface of the rocks both in Scotland and in the rocky mountains of North America, as well as from the direction of the gravel beds and boulders, we must conclude that during some period of its prevalence over the earth, the current set strongly to the south-east.

The proofs of a more elevated temperature than we at present enjoy in these northern latitudes, are very evident through the whole of the secondary and tertiary strata; but in none are they more striking than in the diluvial deposits, from the circumstance that in this stratum we find more animal remains whose congeners are now inhabitants of hot climates. The abundance of perfect

trees, and bones of the mammoth, or fossil elephant, not petrified, found in Siberia, fully confirm this opinion of the heat of these climates being greater immediately previous to the deluge.

We have remarked that all the strata, except the primary, and we may add the trap rocks, are evidently of sedimentary origin; but as we have no reason to suppose that the quantity of water covering the earth has ever varied in any great degree, how are we to account for this conversion of sea into dry land? A consideration of the changes still going on upon the earth's surface will afford us a satisfactory solution of this most interesting problem. The agents employed in producing these changes are the antagonizing powers of fire and water; the former by means of volcanoes and earthquakes adding to continents, and raising islands from the bottom of the ocean; the latter in the form of rain and torrents, levelling uplands, and excavating vallies, and more rapidly wearing away our coasts by the billows which unceasingly break upon them.

We will just mention a few instances of these phenomena, of recent occurrence. The morning after a tremendous earthquake, at Valparaiso, in 1822, the whole line of coast, to the distance of 100 miles from north to south, was found to have been raised several feet above its former level; and Mrs. Graham remarked that this was only one of a series of elevating convulsions, from observing several ancient lines of beach covered with shells and shingle full fifty feet above the present level of the sea. The number of islands raised from the sea within the historic period is very great; the last instance of the kind occurred off the coast of Sicily, but this island has been again reclaimed under the dominion of Neptune, and only exists as a shoal. The above-mentioned elevations of land took place suddenly, but the shores of the Baltic are now pretty clearly ascertained to have been gradually increasing in height for more than a century.

An idea of the destructive effects of running water upon our continents may be formed from the quantity of solid matter carried down annually into the sea by the Ganges, which is estimated to exceed a mass twelve times the size of the great pyramid, the height of which is 500 feet, and the base of which covers eleven acres. Although the ravages of the sea upon our coasts are very much influenced by local causes, they are almost universal in their occurrence; for the exceptions are not real, and where we find the sea retiring as it were, it is merely depositing in some bay or recess, the debris it has washed from the neighbouring promontories. The present rate of encroachment on the Yorkshire coast is about four yards annually; and at Sherringham, in Norfolk, the flag staff has been thrice removed inland within the last fifteen years, in consequence of the advance of the sea. The sand and mud being carried round the projecting part of the Norfolk coast is deposited at the mouth of the river Yare, where thousands of acres are reclaimed, again to be submerged whenever their protecting cause is removed.

In order to account for the greater heat of climate during the first ages of the world, geologists are now beginning generally to revert to the opinions of Leibnitz and Descartes, of the cooling down of the earth into its present condition from a state of igneous fusion. The chief arguments in favour of this hypothesis, are, the ellipsoid figure of the earth, which is the same that a fluid body would assume with the same period of rotation; the volcanic origin of the primary rocks; the marks of more violent action of extinct than of recent volcanoes, as exhibited in the various trap and basaltic formations of the Giant's Causeway, Staffa, the Rowley Hills, &c.; the tropical temperature of the Polar Regions during the deposition of the coal strata, which in Spitzbergen and Melville Island, are associated with the same plants as in lower latitudes; and lastly the increase of temperature both of air and water in wells and mines in proportion to their depth. This degree of heat varies in different places, but not in relation to the latitude; and below the level at which it ceases to be affected by atmospheric changes it increases one degree of Fahrenheit for about every 60 feet of depth. In the present imperfect state of our knowledge of geology, we have no data for determining the absolute age of even the crag, the most recent of the British strata, if we except a few beds of recent shells lately discovered on the Lancashire coast; and when we reflect that the aggregate average thickness of the sedimentary strata is about one mile, the mind is lost in the contemplation of the time necessary to form such an accumulation.

We are also unable to answer another interesting question, viz., at what period of the series man became an inhabitant of the earth; but from the total absence of the remains of human beings even in the diluvial stratum, it is generally concluded that but a small portion of the earth was peopled at the time of that catastrophe.

LECTURE II.

THE Lecturer commenced by stating that at the present and following meeting of the Society, he should direct the attention of his audience to the more immediate object of these lectures, viz., the description of the strata that are found in the neighbourhood of Birmingham, beginning with the old red sandstone or quartz rock, the lowest in the series, and concluding with the new red sandstone, the latest, being that upon which the town is built.

The old red sandstone of the district is confined to the Clent Hills, and to a part of the Lickey Range; and the quartz rock to another portion, which, as it exhibits more sections than the Clent Hills, and the gradual passage of one rock into the other, will form a better subject for description.

The Lickey is formed of two ranges of hills, which have been named the Upper and Lower Lickey, by Dr. Buckland, who first examined and described them accurately. According to him, the Upper Lickey is composed of new red sandstone, but there is reason to believe that this is a mistake, and that it belongs to the same formation as the Clent Hills. The Lower Lickey consists of

four rocky ridges, divided by vallies which intersect them down to their bases. Their direction lies north and south, almost parallel to the upper hill which they join, and then diverge from it a little to the east. All the ridges are composed of quartz, stratified, and dipping generally to the south-west, with an angle of 30° , but at the northern end the dip is northerly, and in some places the strata are almost horizontal. At the south the quartz is thrown back by trap and transition limestone like that of Rowley and Dudley. The limestone occurs, with coal and old red sandstone, towards the north, lying upon cornstone or calcareous breccia. Coal has been found in the angle between the upper and lower hills. The quartz rock consists of strata of various thickness, separated by clayey slate containing mica, though but little mica is seen in the substance of the stone, the purest specimens of which consist of hexagonal crystals of quartz, interspersed with grains of felspar and oxide of iron. In the less perfectly formed stone the felspar is in a state of decomposition, and has the form of veins, which traverse the strata, splitting the rock into thousands of fragments, to which the oxide gives a rusty tinge. The coarsest specimens are merely grains of sand in a reddish cement, not to be distinguished from common sandstone; and in this part of the rock impressions of shells are observed, though the calcareous matter has disappeared, or is converted into a greenish flaky marl.

A section of the rock offers to the view a reddish sand, mingled with irregular fragments of the subjacent rock. Below the sand, the stones become more and more agglutinated, till they form a hard reddish conglomerate of fragments of quartz, imbedded in a mortary cement, without any appearance of stratification above, but gradually passing into the stratified rock on which it lies. In the stratified part large boulders of similar composition are imbedded. The occurrence of these boulders in the solid rock, the great inclination of the strata, and the masses of conglomerate that are scattered even upon the summits of the hills, prove that the Lickey has been subjected to several violent commotions since its formation in the depths of the ocean. It is probable that the formation of the layer of conglomerate is still going on by means of the cementing power which water acquires by the solution and subsequent deposition of the Silica it takes up in passing through sand. A remarkable instance of this kind has occurred within the last 500 years in the river Dove, at Tutbury, where some of the treasure of the Earl of Lancaster was found so firmly fixed in a breccious mass, that it required a pick-axe to break it.

A little manganese is found at the Lickey; and it is rather curious that it is also found at Hartshill, on the edge of the Warwickshire coal field, associated with quartz rock, basalt, and coal, as at the Lickey.

The impressions of shells that have been observed in the quartz, where it passes into sandstone, are such as are met with in the transition limestone, viz., *anomixæ*, *pentameri*, *pectines*, and *encrinites*.

The next stratum above the old red sandstone, in the neighbour-

hood of Birmingham is the transition limestone of Sedgeley, Dudley and Walsall. Limestone is also found at Kingsbury, in the Warwickshire coal field, but as it contains no organic remains, it is difficult to fix its place in the series of strata, though from some circumstances it may perhaps be referred to the lias. It is remarkable that the coal of this district reclines upon the transition and not on the carboniferous limestone of the other coal fields of England.

Lime, next to silix, is the material most universally distributed over the world, more particularly in the strata which succeed the primary. Some geologists have considered that lime might be a secretion of the animals whose remains it contains in such immense quantities; but a comparison of the lakes in Scotland in which shell marl is now forming, with others where no such formation is taking place, has established the fact that no shell marl is deposited where the water holds no lime in solution. To account for the abundance of lime in certain strata, it will be necessary to revert to the primary rocks, of which limestone formed a part. These rocks have been demonstrated to be of igneous origin; and an examination of recent analogous phenomena, as exhibited in volcanic countries in the formation of limestone, will afford a clue to the source of the immense deposits of this mineral in the secondary and tertiary strata. Almost all the springs which contain an abundance of carbonic acid, are situated in countries that are, or have been, the seats of volcanic action; and it is well known that water impregnated with this gas will readily dissolve lime. In passing through the calcareous strata the acidulous water dissolves a portion which it brings to the surface, where the gas, escaping, precipitates the lime, thus forming a stalactical deposit. On the banks of the Anio, at Tivoli, this travertine is 600 feet in thickness, and forms an excellent building-stone. In Tuscany the ground is covered by it to a great extent, which would be increased by diffusion if the springs flowed at the bottom of the sea. In such situations shell-fish abound, and their shells are enveloped by the growing mass, which now becomes a perfect shelly limestone. The solution of the lime by the carbonated water in its course will also account for the caverns which are met with in limestone rocks. All limestone countries abound in caverns, which are so numerous in Styria as to engulph most of the rivers in some part of their course. That curious animal, the Proteus, one of the real amphibia, is found in these subterranean streams.

All the limestone strata of this neighbourhood, have a great inclination, particularly at the Wren's Nest, near Dudley, where they resemble the fructum of a cone, having a dip from 50° to 75° , probably the effect of the same volcanic action that has raised the Rowley Hills. The stone is of two kinds, the black at Sedgeley and Great Barr, near Walsall, and the white at Dudley and the Wren's Nest. The former is apparently the older formation, and is in thick layers; the latter is in thin strata at top, but it is thicker below. Each layer is separated by a thin parting of marly slate,

termed bavin, whose thickness does not increase with that of the stone. No satisfactory explanation has hitherto been given of this form of stratification, nor why the fossils, though equally abundant in every part, project in relief only from the upper surface of the slab; nor why the finest specimens are usually found in the thickest and lowest strata.

The Lecturer then exhibited specimens and drawings of the more remarkable fossils of the limestone, and proceeded to point out the peculiar structure of the ammonites and orthoceratites, and other multilocular shells of this and the succeeding strata, by means of which they are supposed to have had the power of rising to the surface of the water, like the chambered nautilus, and little spirula, the only animals of analogous form now existing; for the sepia that inhabits the paper nautilus is believed to be an intruder, like the hermit crab, into the shell of some unfortunate mollusca it has destroyed. The most remarkable fossil of the limestone is the trilobite, whose place in the series of animated beings is very far from being determined; some geologists referring it to the class of insects, and others to the crustacea, or crabs. It is of an oval shape; like the crab it exhibits an almost plane surface, which may be considered as its head or body, and attached to the body is a three-lobed tail, each lobe of which consists of an equal number of convex plates or rings, jointed to each other like those of the tail of the crab or lobster. Like the crustacea, its surface is covered with minute tubercles and pores, but it differs from them in the position of its eyes, if such they be, which are placed upon the back instead of being beneath its projecting edge, as in that class. As one species of trilobite is monocular, it is probable that the tubercles, which have been taken for eyes, were destined to some other purpose. Again, both the head or body, and the tail, are surrounded by an elevated rounded margin, which is not the case with the crustacea. In this respect, as well as in its jointed structure, it closely resembles the limpet *chæton*; and there is reason to suppose the trilobite analogous to that shell, from the circumstance that nothing but its oval crust has ever been discovered; for were it a species of crab, the legs and claws, which are of the same texture, and even harder than the shell of the body, could not fail to have been discovered among the thousands of specimens of different species of trilobites found in various parts of the world. Mr. Parkinson compares the trilobite to an animal which M. Latrobe has named *oniscus pregustator*, from its peculiar mode of life. At certain seasons the fish called the old wife ascends York River, in the United States, from the sea, in vast quantities, and each fish carries in its mouth an *oniscus* firmly fixed there by its fourteen claws. Perhaps our doubts concerning the nature of the trilobite may soon be dispelled, as the discovery of a recent specimen in the Falkland Islands has been announced.

Of all the petrifications of the transition limestone, coral is the most abundant, and in the greatest variety of forms. A mistaken notion of the nature of coral has been long prevalent, that each

mass is the residence of innumerable animalculæ, which, like bees are actuated by a common instinct in the construction of their habitations, and the preservation of their species. But a more attentive observation of their habits has proved that these zoophytes more closely resemble plants than they were imagined to do, and that each lamina, tree, or mass of coral, is the stony skeleton of a single animal, adhering to the submarine rocks by means of roots, as lichens, fungi, and trees do to the soil; throwing out branches which bear and shed their fruit—the young coral; and, like vegetables, dying when deprived of their bark. This bark is the fleshy part of the zoophyte, and connected with it are the polypi, or coral insects, as they were called, but which are now considered as so many distinct mouths, constantly employed in catching their prey, and supplying nourishment to the whole bark or fleshy portion, to enable it to add by fresh deposits of calcareous matter to the growth of the trunk or skeleton.

Coral requires for its growth water holding lime in solution, which will explain its abundance in the Italian seas, where that mineral is supplied, as we have seen, by the rivers and springs flowing from volcanic regions. The rapid formation of coral islands in the South Pacific, and their peculiar configuration, has been accounted for upon similar grounds. These islands are most abundant in the vicinity of volcanoes, and are of a circular or crescent-like form, with a deep lake in the centre, in which pumice and scoriæ have been found. From these circumstances, and from the fact that coral will not grow at a greater depth in the sea than about 100 yards, many geologists believe that the coral islands are the summits of submarine volcanoes, capped and raised above the surface by the labours of the zoophytes.

A comparison of a recent coral rock, with the Dudley limestone, will enable us to affirm with some confidence that when the latter was formed volcanic action had hardly commenced in its vicinity; no scoriæ or basalt are found in it, and although the important condition of a tropical sea was present, as is indicated by the associated fossils, yet we never meet with coral in rock-like masses; it is entirely in lumps or fragments imbedded in strata of almost unvarying thickness. We cannot, therefore, consider that Dudley and the Wren's Nest were ever coral reefs, but we must suppose that they owe their peculiar form to the upheaving power of volcanic action.

LECTURE III.

THE Lecturer first pointed out the distinction between true coal, one of the lowest secondary formations, and lignite or fossil wood, which is found in many of the secondary and tertiary strata; and then described the most important of the English coal fields.

The south Staffordshire coal field extends about twenty-five miles in length, from near Stourbridge, across Cannock Chase, to Rugeley, having an average breadth of four miles. It is divided into three portions by the intersection of basalt and limestone from

Rowley to Sedgely, and from Walsall to Wednesfield. Besides these extensive interruptions to its continuity, there are many faults or breaks in the strata, some of which are traceable to centres of volcanic action at Rowley and Pouch Hill, near Walsall. This coal formation consists of eleven beds of coal, separated by others of clay and shale, containing ironstone. There are five above and as many below the main, or ten-yard coal, which is formed by thirteen different layers, some lying close together, others separated by thin "partings" of slate clay. None of the beds above the main coal are worth working, their united thickness amounting only to nine feet; but those below it are of great value, being collectively fourteen yards in thickness. The general dip of the strata is south-easterly, and as the extent of the field, to the east, is not known, it is possible that it may join the Warwickshire field, (the dip of which is to the south-west,) and thus form a basin, whose centre would be about Castle Bromwich, or Coleshill.

The main coal crops out at Bilston, and is not found far to the north of that town, from whence it is continued southerly to Dudley, where it is elevated by the limestone on the north of the town, and abuts against, if it does not under-lie, the basalt on the east. South of Dudley it rests upon the limestone on one side, and upon the basalt on the other, and goes on to Brierley Hill and Cradley, where it again crops out. It is continued easterly from Bilston to Wednesbury and West Bromwich, where it sinks rapidly beneath the new red sandstone.

Of this bed of coal, the thickest in England, if not in the world, so much is consumed by the iron furnaces, and neighbouring manufactories, that its exhausted state, in some parts of the field, has induced the miners to be less wasteful in their mode of working; and the slack, or small coal, is now pretty generally raised to the surface, to supply the engine fires. This, with the pillars supporting the roof of the mine, constituting together a third of the whole, was formerly left in the pits, where, becoming ignited by the decomposition of the iron pyrites, it has set fire to the remainder of the bed, in several instances, thus forming what is termed a pseudo-volcano. The action of the fire upon the clay and shale converts them into porcelain, jasper, and vitreous scoriæ, which form good materials for roads. Much sulphur and sal ammoniac is sublimed round the vents by which these fires come to the surface.

There are many different kinds of coal, distinguished by their colour, lustre, fracture, &c. but viewed in reference to their chemical composition, they may be divided into three species, according to the proportions of bitumen they contain. The first yields about forty per cent. of bitumen when distilled, this is the Newcastle coal. The second, the slate coal of this district, contains only about twenty per cent; and the Welch, or stone coal, is almost free from bitumen. Dr. Macculloch considers coal, however, as forming a link in the series of bitumens, which vary by the proportion their hydrogen bears to their carbon, rather than as a mixture of bitumen

and carbon as distinct principles ; in his opinion, all the bitumens, from naphtha to asphaltum, consist of compounds of carbon and hydrogen. In the most fluid, the hydrogen predominates and diminishes progressively, according to their relative tenacity or solidity, where asphaltum ends the series of bitumens ; cannel coal begins that of the coals, and from cannel coal to the most perfect anthracite, or to plumbago, the hydrogen is less abundant as the coal is less inflammable, and yields a smaller quantity of bitumen by distillation. Anthracite yields no bitumen, though it contains hydrogen, until it passes into plumbago, which is devoid of that element. The vegetable origin of coal appear to be established by its association with strata, abounding in vegetable impressions, by its close resemblance to lignite or fossil wood, and by the fact, that some true coal is composed of layers of carbonized vegetable matter.

Here the Lecturer exhibited a series of specimens, arranged according to their chemical constituents, from plumbago through the bitumens to naphtha on one hand, and from plumbago through coal, lignite, and jet, to peat on the other.

Many geologists, with Sir James Hall, have believed that the conversion of fossil wood into coal was effected by heat, but the almost total absence of porcelain jasper in contact with the coal beds, and the facility with which the bituminous shale is accounted for by the mere infiltration of bitumen into the adjoining clay, not to mention many other arguments which Dr. Macculloch has adduced, will induce us to suppose that water, and not fire, was the medium of the change from wood to coal.

The fossil plants found in the strata alternating with the coal beds, are chiefly allied to the fir, cactus, reed, and fern tribes ; but fossil botany has made too little progress at present to enable us to decide with accuracy the place of more than a very few of them in the system of plants.

Shells are rarely seen in the coal itself, but they are very common in the ironstone nodules of the shale. The most abundant genus is the unio, a fresh-water shell, but pectines, producti, and even nautili, are occasionally met with, which are all considered to have been inhabitants of the ocean. The radius of a balistes also being found sometimes in the same strata, gives support to the idea that the coal fields were estuaries, or marshes, occasionally overflowed by the sea. The coal fish which are often shewn in collections and museums belong to the strata superior to the coal, chiefly to the lias ; and their carbonised bodies should be classed with the lignites, and not with true coal.

The hypothesis that at present prevails among geologists respecting the origin of the coal strata, is that they are analogous to modern deposits of peat, and that they were formed from the remains of vegetables growing in and around a lake, marsh, or estuary, which was subject to occasional violent inundations. By these floods, much gravel, sand, and mud, together with trees, and plants, and mineral substances in solution or suspension, was

carried down from the high grounds, and deposited over the previous accumulations; thus producing alternate beds of pebbles, sandstone, shale, and coal, according to their respective densities.

The enormous size of these plants, as well as the quantity necessary to form so great a thickness of coal, is accounted for by the supposition that the primeval world was more disturbed by volcanic action, and the atmosphere more loaded with carbonic acid and moisture, while the soil was hotter from the proximity of the internal fires than at the present time, even in tropical regions, where alone the congeners of most of the coal plants are now found.

The inundations alluded to are not uncommon in volcanic countries, produced either by the sudden condensation of the clouds into rain by the electricity evolved during an eruption, or from the melting of the snows crowning the mountain summits, or from river or sea water sucked up and again discharged from the crater. In South America volcanoes exert their ravages less by burning lavas than by torrents of mud and water. In one instance, nearly fifty miles of country were covered with mud containing so much carbonaceous matter that when dry it is used for fuel. A partial mud-flood of this nature would account for the separation of the two upper beds of the ten-yard coal from the rest, by the interposition of a thick bed of shale, at Bloomfield colliery, upon which these two beds recline, cropping out at one extremity, though they join the main coal at the other. The thin laminæ, however, which constitute the beds of coal are sufficient to convince us of their gradual deposition in most cases, even if the perfect and uninjured remains of the associated fossil plants did not place it beyond all doubt. It may not be presumptuous to suppose that the prodigious development of vegetable life that occurred in those early ages of the world, was necessary to free the atmosphere from its superabundance of carbonic acid; and that the consequent accumulations of vegetable remains were laid up in the form of coal beds, by a bountiful Providence, for the use of the latest and most noble of the beings destined to inhabit the earth.

The existence of a stratum of basaltic rock below the coal, many yards in thickness, and identical with the trap of Rowley, and the occurrence of numerous faults, fissures, and basaltic dykes, in the coal strata, are sufficient to prove that subterranean fires were exerting their energies both before and after the formation of the coal. These faults intersect the coal fields in every direction, and many of them are traceable to the Rowley Hills on one side, and to Pouch Hill on the other. Sometimes the strata have merely subsided many yards at the fault, without any separation; but in many cases the faults exist as fissures, filled up with green rock, or basalt and limestone, altered by the effects of heat. The Rowley Hills make a breach of very considerable extent into the coal field, being about three miles long, by three-quarters of a mile wide, with an elevation of 900 feet. They are eleven in number, and consist of dark-coloured basalt; but except at Pearl Hill there is but little

appearance of columnar structure among them ; here, however, it is very distinct ; and near this part the coal has been worked beneath the basalt, though on the other side the range it reclines upon that rock. The town of Dudley stands upon a kind of isthmus between the basalt on one side and the limestone on the other ; but the two rocks have not been traced to their junction. The other basaltic formation at Pouch Hill has a similar relation to the limestone and coal ; but it is remarkable for its basalt being almost horizontally columnar, and for a stratum of green rock being interposed between the coal beds, which are much altered in texture by its proximity. From Pouch Hill the basalt is continued, with little interruption, in a decomposed state, to Wednesfield. Some curious minerals are found in the basalt at Pouch Hill, as prehenite, zeolite, &c.

The new red sandstone of this district presents no remarkable features, but between Kidderminster and Bewdley, and at the latter place, it appears from the inclination of its strata, to have been subjected to some very powerful and extensive disturbing force.

The diluvium of this neighbourhood consists of water-worn pebbles, chiefly quartz, similar to that of the Lickey, with granite, porphyry, and sienite in a decomposed state, and flints and fossils from the Lias, and very rarely the bones of extinct quadrupeds.

STANZAS.—"GOD BLESS THEE."

"God bless thee !" Oh note most sweet, most soft,
 Played on the harp of love.—From childhood's hour,
 Thy thrilling melody, dear note, how oft
 To cheer the blithe or aching heart hath power !
 In Misery's dungeon or Loves' verdant bower,
 How grateful is thy music, and how sweet ;
 Dew is less welcome to the fading flower
 Than thou that mak'st the heart so wildly beat,
 Cheering when sad we part and gladdening when we meet !

"God bless thee !" sweet music of the heart !
 'Tis music still though heard with sighs and tears,
 E'en though in sorrow's strains that sudden start
 All wildly on the wretched culprit's ears,
 From that fond mother's lips, who now appears
 To bless him ere he die.—Oh what a spell
 That touching note of love ! How sweetly cheers
 Its latest sound.—"God bless thee !"—who can tell
 How thrilled that broken heart at her last wild farewell.

* * * * *

ON THE CHARACTERISTICS OF TREES,

AND THEIR EFFECT IN FORMING PICTURESQUE SCENERY.

BY EDWIN LEES,

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I HAVE been surprised to find in preparing illustrative sketches of trees, how few artists have paid any attention to the subject. I have inquired in vain, in many instances, for original studies of aged trees, or portraits of remarkable veterans of the forest. Landscape painters have sketched ruins and castles till we are so familiar with the features of every ruined edifice "within the kingdom of England, dominion of Wales, and town of Berwick-upon-Tweed," as to require no inscriptions beneath their representations. But trees—themselves more interesting ruins than many a black, dismantled, undistinguishable pile—have been in most instances neglected; and many a "stately tree," the "time-honoured" contemporary of olden days, has sunk into the arms of destruction unnoticed and unmarked on the canvass of the painter. Not, indeed, that artists can fill up their landscapes without the aid of trees, but too often the trees they display are creations of their own imagination, referable to no botanical class, formed on the spur of the moment to fill up a fore-ground, or clothe a barren space; and as the artist himself in all probability intended no particular tree or class of trees, it would argue too much skill in the spectator to suppose he could make out the species thus exhibited. It will be easily perceived, that on this Procrustean system, a forest denizen is made to have arms or no arms as the whim of the moment may direct, and the "*ferat ruber asper amomum*" of the Mantuan bard, if not altogether realized, is very closely approximated to. Even professed delineations of trees, from careless finishing, often want character, and in too many instances I have noticed drawings and engravings that might have passed for almost any tree in the range of woodland scenery, but for the good-natured information contained in the inscription. If, indeed, we except the works of Gilpin and Strutt, we find our native literature very barren upon the subject; but few professional treatises have appeared

* The following paper formed part of a lecture recently delivered before a Philosophical Society at Kidderminster, in compliance with the request of the members. [As the author is preparing a work on the dicotyledonous plants of the midland counties, and is desirous of obtaining information relative to any ruined veterans of the forest that may remain yet unnoticed in secluded situations, with the view of ascertaining their age, he will feel obliged by, and will duly acknowledge, any information calculated to illustrate *old indigenous trees*, not hitherto noticed, more especially those within the boundaries of the forests of Needwood, Wyre, Feckenham, Arden, Wichwood, and Dean.]

that deserve especial notice, and while thousands have dilated upon the effects of light and shade, and the advantages or disadvantages of a blue or a muddy sky to the pictures under their critique, they have been altogether indifferent as to the characteristic features presented by various trees, and the differences exhibited by the rigid tortuosity of the oak, the cumbrous uniformity of the elm, the lofty and majestic bearing of the ash, the umbrella-like umbrage of the sycamore or beech, or the thousand vivifying and latticed wiry sprigs of the dependent lime, letting in the mellow sunbeams as through the traceried interstices of an oriel window. Strutt, indeed, has admirably depicted many of our forest trees in his "*Sylva Britannica*" and "*Deliciæ Sylvarum*;" these are works of which we may be justly proud—many, too, of Westall's views on the Thames represent waving willows not to be mistaken—but the subject yet remains to be treated in a scientific and botanical manner, with regard to our indigenous trees.

Every tree has some peculiar character, which, though perhaps at first difficult to describe, is at once caught and recollected by the eye of the observant naturalist, so that whatever difficulty he may have to make out the trees of the landscape-painter, he has none with those of the real landscape itself.* The funereal yew, the bending willow, and the sturdy oak, will occur to all. This "physiognomy" of vegetation depends, generally speaking, on a very few peculiarities. Of these the most obvious is the *mode of branching*, or ramification of a tree or shrub. The importance of this characteristic is so perceptible, that even in winter, trees may be distinguished by it, and the observer of nature needs not foliage to perceive the striking difference between a poplar, an oak, a beech, or a willow. The branches of a poplar form acute angles with the main stem; both are straight, giving the tree a pyramidal appearance, which in contrast with others, renders it ornamental in plantations. The willow, on the other hand, "stooping as if to drink," if in its prime of beauty, gracefully waves its tresses over the ruffled waters, or as an old pollard on the bank of the stream, looking like a giant, with huge distorted head, cannot be mistaken. The beech darting round its convoluted spokes in regular order, with its wiry branches and smooth bark, forms another character; while the "gnarled" and "knotted oak," stiff, rigid, and motionless, even amidst the most furious blast of winter, merely moans a gruff defiance to the storm.

* An instance exemplifying this occurred to me a few weeks since. Walking with a friend in the country, an extraordinary large misletoe bush caught our view among the branches of a tree on an eminence at some distance. Its great size had a curious effect, and from the shape of the branches of the trees around, I thought it was an oak. My companion differed from me in opinion, and we had an arduous scramble "over bush, bank, and scaur," to determine the matter, when it actually proved to be a *lime*, but growing so close to an *oak*, that the branches of two trees were intermingled together. What was also very curious, numerous *oaks* grew on this ridge, but no other *lime*.

It is important to notice these graphic outlines traced upon trees, because, as Baron Humboldt has well observed—it is vegetation that principally characterizes the features of a country, and distinguishes it from another. The granite rock, the basaltic column, and the limestone ridge, are the same in Iceland and Sweden as in Mexico and Peru:—but who could mistake the *vegetation* of the two regions? Even animals seldom appear in quantities sufficient to give a feature to the scene, and their continual restlessness removes them from our view; but *trees* affect our imagination by their magnitude and stability, *flowers* by the brilliancy of their colours, and *herbs* by the freshness of their verdure.

If trees have their distinguishing characteristics even amidst the gloom of winter, when their denuded branches stretch in mournful array across the heavy atmosphere, we may easily conceive their varied effect when clothed in the vivid umbrage of summer. This, indeed, is noticeable by all who have an eye to appreciate sylvan scenery, and is frequently alluded to by our poets. Thus Cowper has described the various aspect of the *leaves* of trees, in his “Task:”—

“No tree in all the grove but has its charms,
Though each its *hue* peculiar; paler some,
And of a *wannish gray*, the willow such,
And poplar, that with *silver lines his leaf*,
And ash, far stretching his umbrageous arm;
Of *deeper green* the elm; and *deeper still*,
Lord of the woods, the long-surviving oak.
Some *glossy-leaved*, and shining in the sun,
The maple, and the beech of oily nuts
Prolific, and the lime at dewy eve
Diffusing odours: nor unnoticed pass
The sycamore, capricious in attire,
Now green, now tawny, and, ere autumn yet
Has chang'd the woods, in *scarlet honours* bright.”

Numerous other trees might be mentioned more or less obviously claiming the attention, but all are familiar with the silvery feature given to a landscape where the waving willows of the brook predominate and are agitated by the wind. Contrast, too, the gloomy aspect of a pine forest, or even of a single dark pine or fir, recognizable over a country for miles, with the splendid parti-coloured and golden umbrage of the beech in autumn, unrivalled in its vividity, as the sunbeams play upon the smooth leaves. The forest scenery of Great Britain, indeed, when we leave the cathedral tower far behind, the dim blue apex to a dark mass of distant foliage,—when we enter among the scattered relics of olden forests, or penetrate amid the glens of a hilly or rocky region, presents features interesting to the true lover of nature; and without studying from scenes like these, the true effect of our forest trees is unknown and unattended to. Look at the contorted lime forced in the plantation to crimp up its toes and

shoulders to range in the "rank and file" line that some capability Brown has marked out for it—but how different its independent aspect on the rocky strata of Ankerdine hill, in Worcestershire, or like an hoary Druid, shaking its tresses over the foaming cataracts of Pont-nedd-Vechan, Glamorganshire. The yew, subjected to the metempsychosis of a Dutch gardener, with outstretched wing, or stiff tasseled crest, is unsightly enough to the eye of taste; but seen in its native solitudes, clustering up the sides of a bare hill, or encamped with its horny tortuous roots upon the edge of a steep precipice, its funereal plume waves *there* in unison with the rough rocks around. Those who have seen the yew on the sides of the Wrekin, and adjacent Lime-kiln Woods, or where, overshadowing the streams that murmur from their defiles, clustered with ivy, it throws the deepest possible obscurity of shade upon noon's fervid glare; or those who have paused, as I have, to mark its old mossy clumps, shrouding in early spring the brook that patters down the rocks of Areley, on whose black basaltic height the Roman eagles have stooped, will duly estimate the yew as a British tree,* and admit its pictorial effect in its native habitat. Wordsworth has well described the appearance of the yew in Cumberland—

"There is a yew-tree, pride of Lorton Vale,
Which to this day stands single in the midst
Of its own darkness, as it stood of yore,
Not loth to furnish weapons in the hands
Of Umfreville, or Percy, ere they marched
To Scotland's heaths, or those that crossed the sea,
And drew their sounding bows at Agincourt,
Perhaps at earlier Cressy, or Poitiers.
Of vast circumference and gloom profound,
This solitary yew!—a living thing
Produced too slowly ever to decay;
Of form and aspect too magnificent
To be destroyed."

England is distinguished by her park-like scenery, and nothing is more characteristic of an English nobleman or gentleman's mansion, than the "old patrician trees" that surround it, and give only an indistinct and imperfect view of the towers and wreathed chimneys rising above them. A long avenue of trees, forming a natural arch overhead, if the vegetable columns have sufficient room to extend themselves, forms a majestic object to gaze down, especially when a picturesque building in dim perspective forms a vista to the scene. In this case, however, the trees must be all

* In Loudon's "Arboretum Britannicum," recently published, a doubt is raised on the authority of Daines Barrington, as to the yew's being an indigenous tree. Those who have rambled over the woods and hills of Worcestershire and Herefordshire, where hundreds may be seen in every stage of growth, can entertain no more doubt on the subject than they would as to the bramble's being a native. At the western base of the Herefordshire Beacon, beyond Little Malvern, some very fine old trees occur, and numerous others are dispersed in the woods.

of one species, or the mass is broken, and the longer the avenue the better the effect. Those who have seen the magnificent avenue of limes at Cotheridge Court, Worcestershire, a quarter of a mile long, in double columns; or the huge luxuriant firs stretching along a broad extent of greensward, at Llanvihangel Court, Monmouthshire, will fully comprehend the effect thus produced.

“A length of colonnade
 Invites us. Monument of ancient taste
 Now scorn'd, but worthy of a better fate.
 Our fathers knew the value of a screen
 From sultry suns; and, in their shaded walks
 And long protracted bow'rs, enjoy'd at noon
 The gloom and coolness of declining day.” COWPER.

But in admitting the effect of colonnades, under certain circumstances, we must discard all other regular figures from the picturesque of plantation. Squares, circles, or polygons are all in bad taste, and when as at Bleinheim, the plantations are made to represent the positions of squadrons of horse and foot in battle array, the puerile conception of groves thus “nodding at each other,” is too flagrant and apparent to be dwelt upon.

An estate or wild district of country is often much improved and rendered beautiful and picturesque by judicious planting; but the present practice is often too indiscriminate, and the effect therefore fails. A clump of firs on the summit of a barren hill (if the aspect be not too bleak) has in general a good effect; but if the entire hill be planted in the same way, the uniform sameness tires the eye, the trees being all nearly of the same growth. A wild pine forest, on the other hand, on rocky and broken ground, with aged veteran trees stretching their roots upon the banks of a brawling stream, hurrying along a deep stony ravine, has a fine picturesque effect. The indiscriminate planting of evergreens and deciduous trees together, though commonly practised, is objectionable, and particularly if they are placed too near each other, and no attention paid to their thinning and pruning. But judiciously grouped together, the effect of evergreens is often very fine; Lord Bacon has descanted in his Essays upon their effect in a winter garden, and Evelyn speaks with rapture of his magnificent holly hedge, at Say's Court, which the eccentric Czar Peter amused himself by riding through when an artizan in the Woolwich dock-yard. Where the holly grows naturally, its effect as a wild thicket in the wintry season, with its varnished leaves and brilliant ruby berries, is very exhilarating in a season when all appears bleak and denuded, and I have frequently met with spots about the Wrekin, the Lickey, or the Malvern hills, that at such a time had the effect of the most beautiful and brilliant cabinet pictures, seen in unison with the objects around. This is the charm of forest scenery—suddenly to dive into some bosky recess where the world is entirely shut

out, the green leaves and the blue sky *all that is seen*—the waving branch and the plashy streamlet (across which some mossy trunk has fallen) *all that is heard* !

—— “ The deep recess of dusky groves
Of forest, where the deer securely roves,
The fall of waters and the song of birds,
And hills that echo to the distant herds,
Are luxuries excelling all the glare
The world can boast, and her chief favourites share.”

An arboretum formed without any attention to the features of woodland scenery in a state of nature, is but an heterogeneous collection of individuals, pining for their native associates, productive perhaps of wonder to the ignorant stranger, but altogether wanting in that local aspect so pleasing to the naturalist. Among rocks and lakes the pine genus are peculiarly appropriate; they convey the ideas of savageness and solitude, and gloomy silence seems enshrined within their limits. The aspect of a fir forest in Norway is thus described by a pleasing writer :*—“ Those who have never been in any other than woods of small extent, and adjacent perhaps to the abodes of men, have no conception of the silence and solitude which pervade the greater forests. The former are full of little birds, in whose very aspect there is gladness, and in whose chirpings and clear notes there is no touch of melancholy, and being associated too with gardens and lawns, and with our very parlour windows, mirthful rather than gloomy images are awakened by their presence:—but no images like these, nor any such associations, belong to the forests of the north. There no little birds hop from spray to spray—no gay melody is in the air—the rustling among the bushes does not denote the presence of the tuneful thrush, but of some wild and solitary animal with which man has no associations. An eagle or a heron rising from a dell, or soaring above a lake, augment rather than detract from the feeling of solitude, because *they* are birds of solitude, and never visit the habitations of men.” The fir, then, is more appropriate to the wilderness than the garden, where too often it grows in a mean stunted way, incommoding its neighbours. But the magnificent cedar, stretching over a vast circumference with its huge arms, seems exactly appropriate to the vicinity of palaces, and combines well with the towers and turrets that rise in architectural display around it. Hence the images imprinted on the mind, and when we view the massive architecture of the east associated with the cedar, we involuntarily recur to Babylon or Nineveh in its ancient grandeur, as the palm directs us to Palmyra or the pyramids.

From the cursory remarks I have made as to the striking distinctions in the characteristics of trees, even in the limited Flora of our own country, it may be easily comprehended that in the

* Inglis's Journey through Norway.

almost numberless trees of foreign climes, a still greater variety of forms and characters must appear, sufficient to affect the general features of the locality, and distinguish one district from another. This is in fact the case, and without entering in detail upon the sixteen peculiar features described by Humboldt, it may be sufficient to observe that the *palms*, *bananas*, and *tree ferns*, peculiarly distinguish tropical countries; the *heaths*, of which 300 species are known, are mostly confined to South Africa and the old world, none being found in America or Australia; the *aloes*, from their magnitude and the imposing aspect of their pyramids of flowers, give a singular feature to the parched plains of Africa; while North America, profuse in her flowering forest-trees, presents in her magnificent magnolias and liriodendrons objects of beauty unknown to European latitudes. Again the plains of Australia are distinguished by the dull and sickly evergreen eucalypti, often attaining the height of 150 feet; the "myrtle groves and orange bowers" breathe perfumes around the countries of the Mediterranean; while the stately cedar and the lofty pine ascend the heights of the most precipitous mountains, and towering even amid the snows, give an expressive feature to the Alpine scenery. Were we at once wafted over half the rotund earth to that immense banian-tree mentioned by Forbes, whose principal trunks amount to 350, while the smaller dependent stems exceed 3000, we should at once recognize Hindoostan, and behold in imagination the gymnosophists mentioned by Arrian, and see in reality the Brahmin dressed in his long white tunic, spending his solitary hours beneath the sacred tree, himself held sacred for its sake, and supplied with the comforts of life in return for his prayers and benedictions.

Trees, even in the arboretum, should endeavour to awaken our sympathies, and this they will do, if a judicious attention be paid to the circumstances under which they grew in their native clime. A cypress that would be dissightly and neglected on a common, is classical and impressive beside an inscribed urn in the pleasure ground. Poetical association is indeed less indebted to the eye than the mind; for though the eye awakens the association, the train of thought was already there—it had slumbered from earliest infancy, and needed but a single note to awaken up. Old trees, "bald with antiquity," lightning-scathed trunks, or moss-grown seniors propped up and only saved from destruction by a mantle of supporting ivy, are fine materials for the picturesque, contrasted with young vigorous plantations, and impart great interest to a woodland view, especially should some old stag be resting beside their battered trunks. Memory, fancy, and poetical association here all conspire to charm and affect the mind. The trees beneath which we have played in infancy, the huge old roots where we have perhaps sat a thousand times, while the laugh, and the tale, and the game progressed merrily;—the grove, or the avenue along which we paced when receiving

the last advice of a father ere we sought other realms;—the shady walk where the evening star witnessed the first enthusiastic declaration of a youthful but never-to-be-forgotten affection:—the mansion concealed almost amid oaks or elms, where a brother or uncle formerly resided—a home to us once, but a home no more!—the funereal gloom thrown over the cherished forms of those that once loved us, now resting in peace, unconscious of our woes!—these are the materials upon which poetry works, and largely draws upon our sympathies. She paints the “common lot,” tells us of our past joys, and we cannot but be impressed, because we all deplore the loss of some past joy, that is alas!—irrecoverable. How skilfully Cowper has worked up these feelings in describing the simple fact of the destruction of a grove of poplars.

“The poplars are fell’d, and adieu to the shade,
And the whispering sound of the cool colonnade.”
* * * * *

“Twelve years have elapsed since I last took a view
Of my favourite field and the bank where they grew;
And now in the grass behold they are laid,
And the tree is my seat that once lent me a shade.

My fugitive years are all hasting away,
And I must ere long lie as lowly as they,
With a turf on my breast and a stone at my head,
Ere another such grove shall arise in its stead.”

We shall perhaps be as much affected if we consider the converse of this, and contemplate a tree whose vast extent of shade has overspread the earth centuries before we saw the light, and whose immense bulk will still continue to resist the storms of winter; when all that we have loved are vanished from below, and when we ourselves, and perhaps our very names and even nation, shall have passed away.

Our feelings may be also excited by the characteristic features of trees. The first golden catkins of the willow, produced in early spring, when we saw the first butterfly of the year, or heard the first hum of the bee; the oak beneath whose canopy of verdure we have sheltered from the storm; the long line of silvery willows, disclosing the devious course of the brook, where we have loitered or angled many an hour; the flowering limes vocal with unnumbered insects diffusing fragrance amidst the scorching heats of summer; and the beeches, with their bark indented with a hundred letters carved by the hand of love or frolic;—all produce a train of association that has only to be kindled with the spark of poetry, to touch and warm our hearts. One of the most beautiful episodes of Homer is that where Hector, returning from the conflict to Troy, to direct an immediate sacrifice to Pallas, finds all the Trojan females seated in security (though almost within hearing of the slogan of war) beneath the shade of the beech trees—

" Meantime, the guardian of the Trojan state,
Great Hector, enter'd at the Scæan gate ;
Beneath the beech trees *consecrated shades*,
The Trojan matrons and the Trojan maids
Around him flock'd, all pressed with pious care,
For husbands, brothers, sons engag'd in war."

HOM. *Ill.* vi. 296—301.

Humboldt has well observed on this point that "the poetry of Greece, and the ruder songs of the northern races, are in great measure indebted for their different characteristics, to the forms of animals and plants, to those of the mountains and valleys which surrounded the poet, and to the air which fanned him." "Who has not felt his mind," he continues, "very differently attuned, when under the dark shade of a beech grove, or when standing on a hill crowned with isolated fir trees, or when in a meadow, the wind murmuring in the tremulous leaves of the birch; melancholy, serious, or pleasing images are called up by these vegetable forms of our father-land. The influence of the physical on the moral, this mysterious connexion between the inner and exterior worlds, gives to the study of nature, when thus generalized, a peculiar and hitherto little known charm."*

I cannot at present enter upon the benefits productive to barren land from plantations, or the profits that are derivable therefrom: my object here being only to consider the subject in a pictorial and poetical view. There are feelings connected with trees that impress even the most indifferent minds. We trace them in past ages as the seat of honoured tribunals, beneath whose shade justice was dispensed, and the sacred rites of hospitality performed. We behold them preserved to the extremest old age as landmarks, or as forming a mournful shade over the ashes of those we love. We turn to them with rapture and awe as associated with the names of bards and heroes, whose memories are recorded in our annals, and with whom we would converse as we gaze upon the trees beneath whose shade they reposed.

Dr. Johnson loved to visit a favourite willow near Lichfield, and Salt, the Abyssinian traveller, in his letters from Egypt, asks "if the great elm and willow are still standing?"† and says the assurance that the old pear and apple trees, and the mountain ash were still living, gave him great delight. Such feelings have led to the preservation of trees in every age, mentioned by various authors—such as the Menelaïd plane in Arcadia, seen by Pausanias, A. D. 151, and believed to have been planted by Menelaus previous to the siege of Troy—that also hanging over the temple of Delphos, and the one by which Socrates used to swear—the plane-tree called Caligula's nest, at his villa near Velitræ, capable

* Essay on the characters of Vegetation, by Baron Humboldt.

† Halls' Memoirs of Salt, 2 vols. 8vo. Perhaps some Lichfield reader of "The Analyst" can give an answer to Salt's query, with the dimensions of the trees.

of accommodating fifteen persons at dinner, with all the attendants imperial pomp required—the holm-tree at Rome mentioned by Pliny, with old Tuscan characters upon it, from which it appeared that it was a remarkable tree before the foundation of Rome—the renowned cedars of Mount Lebanon, one of which was thirty-six feet in girth when seen by Maundrell, though still sound, and beneath whose boughs the “feast of cedars” is still annually celebrated—the tilia of Basil, under which the German Emperors used to dine—Alfred’s oak, near Magdalen College, Oxford, whose canopy of shade could have sheltered 3000 men—or the great lime, at Newstadt, in Wirtemburgh, honoured by above two hundred monuments, obelisks and inscriptions in honour of it, by princes and nobles who had visited the tree.

I might to this list add many remarkable denizens of the forest even in our own neighbourhood, but the length to which I have extended this article obliges me to draw to an abrupt conclusion. Last year I was shown at Walcot, Salop, the seat of Earl Powis, a young mango-tree in the splendid greenhouse there, planted from the fruit presented to the hand of England’s proudest hope, the Princess Victoria. When at some far distant day that accomplished princess shall ascend the throne,—when surrounded by all the glories royalty can bestow, happy in the love of a contented people—but ah! not exempt from the cares that shadow even a royal brow,—what may be her emotions when again gazing at that mango-tree, planted with her own hand in the happy hour of youth and joy!

In conclusion, I would recommend all to cherish a love of woodland scenery—for the emotions to which it gives rise must lead us to a train of feelings that will enable us to enjoy with greater zest the works of our best authors, and perhaps raise our thoughts to the great Author of Nature himself. To those who have land, nothing can be more gratifying and profitable than planting such hardy trees, native and foreign, as will bear the climate of Britain, and few are aware of the growth of a plantation even in ten years.* We cannot, indeed, have the palm or the banian to adorn our grounds, but as arboriculture is yet in its infancy, the curious stores of our arboretum may be increased year after year.

But could we even only pay attention to the indigenous trees of our native island, these are important enough to demand our study, and to furnish an ample store of knowledge and pleasure. In a national point of view, the preservation of our invincible navy depends upon the true British oak being preserved for ship-building, and plantations of it should be constantly progressing in every stage. Lord Collingwood used to say that he would never walk out without taking a handful of acorns to scatter about the country, leaving them in the hope that many would

* See Loudon’s “*Arboretum Britannicum*,” now in course of publication, where the plates represent plants of ten years’ growth.

rise up into trees fit for the navy. Here is the pivot on which our national grandeur rests. While we command the ocean, while our navies are ready at a moment's notice to wave their pendants in the favouring gale, and pour their broadsides wherever an enemy shows himself, we have nothing to dread from war; and peace, bringing to our ports the productions of every nation at an easy price, must, with good government and domestic tranquillity still render us independent of all other states, and point us out to them an object of unmixed admiration, though beneath less brilliant skies and less ardent suns than theirs.

——— "Let India boast her palms, nor envy we
The weeping amber or the spicy tree,
Since by our *oaks* the precious loads are borne,
And *realms* commanded which those *trees* adorn."

CRITICAL NOTICES OF NEW PUBLICATIONS.

Birmingham and its Vicinity, as a Manufacturing and Commercial District.

By W. Hawkes Smith. With numerous illustrations, engraved on steel. Nos. 1, 2, and 3. Radclyffes and Co. Peck-lane, New-street, Birmingham; and Tilt, Fleet-street, London.

The issuing of publications of this description in numbers, is of advantage both to authors and readers—it enables the former to avail themselves of time and circumstances, to add new matter and to effect all necessary alterations, as the work proceeds, and to the latter it cherishes the expectancy of future gratification.

This work is divided into its several portions with suitable and well-adjusted classification. The district is first considered with reference to its topography and geology; then follows a detailed account of Birmingham from its first origin; and afterwards a description of the various manufactures by which this town and neighbourhood are most distinguished.

Streets, churches, institutions, and public buildings, the author justly observes, are to be found in almost every town in the kingdom; and where these constitute all that is interesting, let them constitute, also, the staple of the description; but surely a place whose varied manufactures are dispersed among all "the civilized nations of the earth," may claim its peculiar history *on their account especially*. The inquirer who seeks for information in Birmingham and its vicinity, expects to gratify laudable curiosity by the inspection of the processes of manufacture, the wonders of machinery, and the finest specimens of the elegant works of art. He therefore may fairly desire to have recourse to such a description as may not only in general terms inform him that such things are, but may also, specifically, call his attention to the precise points most attractive.

To illustrate the state of the arts and manufactures of Birmingham, by a publication, which shall combine the popular character of what has been attempted under the title of a "Magnificent Directory," with the

information to be derived from a scientific and topographical description, has been evidently the professed aim of the intelligent author; and in this attempt he has most ably succeeded.

In his observations on the mining district, the following extract on the article of coal consumed for one particular purpose—the smelting of iron ore, will excite no small degree of astonishment:—

“One hundred and fifty years ago, though coal was, says Plot, ‘used, not only in private families, but for most, if not all of the mechanical purposes;’ though it was also ‘prepared by charring, and called coak,’ which rendered it more extensively useful, there were but fifty or sixty thousand tons raised annually in the whole district. Such a statement, compared with the present production, exhibits a difference and an increase absolutely astounding; a sum and magnitude approaching the sublime. To illustrate this, in a striking point of view, it may be well to consider the quantity of coal raised for one particular purpose,—the smelting of iron ore. A single iron furnace, in active operation, runs out, weekly, nearly fifty tons of metal. These fifty tons are produced at the cost of about seven tons of coal to each ton of iron, or three hundred and fifty tons of coal per furnace per week. Multiply this by fifty-two for the number of weeks in a year, and the product by a hundred for the number of furnaces in the district, and the result, *a million and three quarter of tons of coals*, gives a rough estimate—not of the quantity produced; not including that which is required to render the *pig* or fused iron fit for the *hammer*, nor the vast amount used in the preparation of manufactured articles, nor the contents of the countless loaded boats sent for the supply, domestic and manufacturing, of distant places; but only that which is consumed in the act of *rendering fit* for the foundry or the forge, the iron smelted in the district. A quantity equal to thirty times the *entire and total* produce of 1680, consumed in effecting that which was *then* performed *by the combustion of other fuel*! The mind is bewildered with the conception of a totality so vast;—of a consumption so prodigious.

“We might continue the calculation by assuming a similar quantity as the total, employed to the other various purposes, but no certain data could be adduced to verify the statement. Enough has been said to shew the extraordinary changes that have taken place in this neighbourhood, within a comparatively short space of time; to exhibit the prodigious natural wealth of the district; and to evince that some consideration as to the mode in which these treasures are deposited in the recesses of the earth, may fairly be expected to be attended with much interest.”

The following account of a descent into a coal-mine, and the method of working it, will not fail, also, to prove interesting:—

“The traveller, in a mineral country, will scarcely consider that he has seen all that claims his attention, unless he descend into the subterranean depths where the work is carried on. There is something novel and interesting in the act of exploring the secrets of the mine. It resembles a rapid visit to another world, or an unknown country. The trip, however, is quickly performed,—without difficulty or danger;—and the information required well defrays the cost of time so bestowed.

“While the trifling pre-arrangements are making for a descent, the visitor takes a rapid glance at the apparatus on the surface. Of this, the principal object is a steam-engine, of greater or less power, in proportion as the pit is more or less troubled with water,—in some cases, the contest with this enemy entirely employs a very powerful engine, so that the coals are drawn up by means of another smaller engine placed near the principal one. The water is raised by the alternate action of two pistons, which thus throw out the intrusive fluid in a continued stream. Elevated above the mouth of the working shaft is placed a simple triangular tacking, from which, at the height of twenty to twenty-five feet, hangs a small iron wheel, over which passes the end of a long flat rope or chain, about four inches broad, which is coiled round an axis or band, moved by the engine. At the end of this chain is suspended the platform or carriage, on which the visitor and his guide place themselves, and which reposes upon the sliding head or cover of the shaft. This carriage is first raised a little in order to withdraw the wooden covering; and the shaft or pit then lies open in all its black profundity. The carriage immediately commences its descent—rapidly and silently. Casting an upward look on the failing light, the stranger’s attention is arrested, to perceive that all the weight of himself, his guide, and the carriage, is insufficient to keep the rope in a complete state of tension, but that it undulates in considerable waves

through its whole length. He also perceives that the shaft is filled with a thick haze or mist, which is, in fact, the accumulation of foul air, and all sorts of impurities, which are driven out of the mine by a rising current of pure air, and which thus ascend by the shaft. Darker and darker each moment becomes the shaft, and the upper orifice is now an inconsiderable circle of brightness, and still the machine descends;—down—down.

"Landing at length, after his easy transit, the visitor finds it difficult to discern the objects about him, even with the assistance of the candle which is placed in his hand—in the double blackness occasioned by the absence of light, and by the sable hue of the ribs and walls of coal by which he is surrounded. * * *

"Arrived at the part where active work is going on, several candles, stuck by means of lumps of clay against the sides, shed a feeble light; and by each of these, a workman is seen pursuing his laborious occupation. It is the universal custom for the colliers, when engaged at work, to have the upper half of their bodies unclothed; thus leaving their limbs completely at liberty, and lessening the inconvenience which would be felt if fragments of coal were continually falling within their dress. Their arduous employment prevents their suffering from cold; and indeed, the temperature, at these depths, is always rather high, and receives but little variation from the changes which affect the state of the upper air.

"Noting the operation of getting out the lowest coal, it will be a matter of astonishment to perceive into how small space the human figure can be packed, while the pick or pike is constantly applied. An excavation below the stratum, perhaps eight or nine yards square, being driven—the cavity not more than two feet to two feet six inches high; the colliers next proceed to the still more difficult task of cutting *upwards*, in the sides of the impending mass, forming a channel of eight or ten inches wide, and four or five feet high, leaving here and there a small point called a *sperrn*,* still attached to the main wall.

"The smallest coal and slack are all along carried away by boys employed for the purpose, and removed, if the work be a new one, or if there be a demand for it; but if the mine be partially cleared, and no demand exists for the small coal, it is laid in heaps, on the nearest cleared space.

"The cavity completed, it is obvious that a solid mass of coal, eight or nine yards square, and four or five feet thick, hangs, supported only by the occasional points or *sperrns* before mentioned. Retiring then to a safe distance, the miners, with light poles, fifteen feet long, shod with hooks and points of steel, and termed 'prickers,' by degrees work away a portion of the support, till a slight warning crack is heard. Every one then gets out of danger, and shortly after, the vast mass thunders down. The quantity of coal which descends at a single *fall*, varies according to circumstances, from one hundred to three hundred tons. This is then broken into removable pieces, and piled on the small low four-wheeled carriages, or skips, before alluded to, which run on the railways. The pile on the skip is carried to the height of four or five feet, by means of three or four broad iron hoops thrown over it, as necessity requires, to keep the coals in their places; and is further secured by two strong chains. When arrived under the shaft, the hook of the descending rope is attached to these chains, and the entire load, including the carriage, is drawn up.

"The lower fall of coals being thus cleared away, the miners prepare to bring down the next stage above, by cutting upwards in a narrow channel as before, as far as they can reach, leaving the requisite holds or *sperrns*, in a similar manner. In this work they are partially assisted by the heaps of slack, when these are left behind; but when they can no longer reach to make their strokes, temporary scaffoldings are affixed into the perpendicular sides of the mine, by means of short and stout wedges of wood, called *byets*, which are driven into holes bored for the purpose; these *byets* carry planks, on whose frail and precarious footing the workmen stand, to pursue their dangerous task of detaching the enormous impending mass, which a few superfluous or injudicious strokes may bring down in resistless ruin on their heads. Such accidents, however, are of rare occurrence; practice enables the workmen to judge very accurately how far they may proceed to sap the support of the upper strata; and the weight is seldom known to fall without some notice. When the proper degree of cutting has been effected, the *pricker* is used, as in the former case, to bring down the loosened mass.

"In clearing out the coal, care is taken to leave at such distances as are thought necessary, strong pillars to support the superincumbent strata; so that when a mine of ten yard coal has been some time worked, it presents the appearance of an extensive and regular range of cavities, technically termed *stalls*, supported by massy columns of thirty feet in height.

* "*Sperrn* (German), a spur, buttress, &c.

"The arrangement of these pillars, the size of the stalls, and the measurement of the work, comparing its progress with the area on the surface, under which the mine is to extend, is the office of the *ground bailiff*, who superintends every operation, and keeps order among the often mischievous spirits who form the population of a mine."

In glancing over this useful and intelligent work, we find that Birmingham, commencing its existence in the profound depths of antiquity, and drawing its raw material from its own vicinity, was the seat of manufactures, while yet manufactures were few and simple, and before commerce had dispersed them in other directions. Inconsiderable in point of size and population, for many generations this town was very little known, but being principally peopled by a race of artificers in iron, its inhabitants slowly and decisively acquired fame and skill; and when circumstances favoured the introduction of new manufactures, they were prepared to take advantage of every change, and to exercise their ingenuity in the fabrication of articles of ornament which had hitherto been unknown in the country. About the time of the restoration of Charles II., whose long residence on the continent gave new tastes and new habits to his Court, the first great step towards improvement took place; and when, in consequence, the fashions and the ornaments of foreign countries began to claim admiration, and to excite the emulation of imitators. Then dawned a new era in Birmingham—the era of enterprise and improvement. This change was likewise accelerated by political circumstances, which brought a large influx of individuals from cities and boroughs of chartered importance, bringing with them capital and industry, who settled in this then inconsiderable town. Since that time Birmingham has continually and rapidly advanced; and towards the middle of the last century, its original vulcanian pursuits having ceased to form its prominent characteristics, and the ornamental manufactures so extended and varied themselves, that in his day, Edmund Burke termed the place, not inaptly, "the toy-shop of Europe." There was such a want of classical and elegant taste, however, at this period, in most of their fancy and ornamental manufactures, that the name of "Birmingham" became a jest and a bye-word, and was fastened on any article of ornament which was distinguished by misplaced or incongruous decoration. Time and competition have, however, induced an acquaintance with better principles of art; and at the present time its inhabitants are competent to the design, as well as the execution of all articles that require the exercise of taste, skill, and science, in the course of their conception and completion. The change in the manufacturing pursuits, which began to take place at the close of the last century, had an intellectual and improving tendency. Steam-engines and their attendant mechanical inventions could not fail to enlarge and improve the minds of those engaged in putting them into action. Such a mass of scientific power could not be accumulated, without rendering science itself familiar to many minds. The extended trade of the town, and the consequently increasing habits of locomotion, tended also to increase liberality of sentiment—the principal inhabitants became imbued with chastened and enlarged views on political as well as other subjects, and the more ardent spirits on both sides were thus held in salutary check.

Birmingham is in every sense of the word a "manufacturing town," the birth-place and chosen spot of the most effective machinery, and with such pretensions and advantages as no other place in the British empire can equal—in wealth and magnitude, in population and importance it is inferior in rank only to the metropolis. It must not be inferred from this observation, however, that the hammer and the anvil

have chased away the impressions and the love of literature. In no large commercial town is the desire of lettered distinction more ardently cherished, or brought into play with more distinguished success. There are Libraries, and Philosophical and Literary Societies of the best description—a School of Medicine, an annual Exhibition of Paintings, and other intellectual establishments—and there are few places in England wherein are congregated so many men of lofty genius and first-rate talent. Writers of the most distinguished eminence reside in Birmingham, and the whole range of arts and sciences are cultivated with an assiduity and perfection most honourable to its talented residents.

Under the head "Manufactures" is an excellent description of the steam-engine, with an account of the various improvements made in them by Newcomen, Watt, and others, into which we regret want of space will not allow us to enter. That the introduction of this powerful engine has been productive of the most beneficial effects, the following brief extract will demonstrate:—

"The various manufactures of this town are carried on, in numerous instances, by persons of small capital, who, yet, may require a mechanical moving force; and their necessities have produced a trade, in the article of *Steam Power*. The person who erects a large steam engine for a considerable work, finds it his interest to make its power much greater than his own concern actually demands. He is thus enabled to secure to himself a profitable return, by the sale of his superfluous power, to persons who may occupy part of his building, or to whose machinery it may be communicated, by means of long shafts or spindles, extending to the adjoining premises. The manufactory in any line which happens to be situated in a spot contiguous to a large engine, is thus, at an easy rate, supplied with the quantity of power required. Nay, the mere working man, who has saved a trifling sum, is enabled, by renting a share of *room and power*, in some extensive rolling mill or other considerable establishment, to pursue on a small scale, an occupation, which would otherwise be out of his reach. The proprietor himself, also, has at his command a magazine of power sufficient to meet the emergency, should an extension of his own concern render the force he has hitherto employed insufficient for his purposes."

The historical portion of this work, as well as that part relating to manufactures and machinery, teems with interesting and valuable information, on which, had it been practicable, we would have gladly commented. We hope to refer again to this publication, however, as it farther advances, for it is well worthy of a more enlarged notice.

Before we dismiss this concise analysis of a most useful and entertaining work, it is, in strict justice, absolutely necessary that we draw attention to its execution. The author (Mr. Hawkes Smith) must have used most indefatigable industry in his researches for materials for his work, which appears to us to be very complete, and is, most assuredly, very ably penned. We must also direct due notice to the typographical part of the numbers, not only for its general correctness, but for its extreme neatness. In a most especial manner, however, are we bound to speak most favourably of the numerous illustrations engraved on steel, with which it abounds, all of which, for their style and subject, are as excellent specimens of the graver's burine as can be well imagined. Part of these, it must be noted, are *address plates* of manufacturing and commercial establishments. These form a distinct feature in the work. They present cleverly combined groupings of ornamental articles, or characteristic street-views and interiors;—and although not connected with the literary portion of the work, are deserving of notice as good specimens of tasteful design and execution, and an indication of spirit and enterprize in those who take such means,—attended with unavoidable expenditure,—of advertising their residence and occupation.

The Natural History of Birds. By Robert Mudie, Author of "The Feathered Tribes of the British Islands," "Guide to the Observation of Nature," &c. London: Orr and Smith, Paternoster Row. 1834.

There is much soundness in the prefatory comments of Mr. Mudie on the influence which a pleasurable and interesting mode of communicating knowledge acts on the minds of the young, in contradistinction to that dry and wearisome mode which long custom has adopted in most of our seminaries of learning. "The natural desire for knowledge," he justly observes, "has only to be preserved alive, enticed by that which is pleasant, and kept in the way of that which is useful; and all will learn, not only voluntarily, but in spite of opposition. That such would be the case, if the young were not sickened with mechanical trifles in which there is no occupation for the mind, and condemned to drudge at that in which they can see no usefulness and find no pleasure, is not only probable, but demonstrated in the cases of those who have been spared this weariness of the spirit, and also saved from those errors into which the unoccupied minds of the young are so prone to fall. To save from those errors, and at the same time to keep the natural desire alive and on the alert, there is no subject better fitted than natural history."

Natural history, when considered in its largest extent, observes the author, is the quarry from which the materials of all the sciences, as well as those of the arts, are brought, and yet it is a science wholly of observation. We may place the plant or the animal in peculiar circumstances, and watch the results; but still these differ in kind from those which we obtain when we make experiments on dead matter. As the science, therefore, is wholly one of observation, all the information arising from it should be as much as possible in accordance with the mode in which knowledge occurs to us by observation. This is necessary not merely to secure the possession of the knowledge itself, but to secure that enjoyment of what we know, which constitutes the real value and use of knowledge. The knowledge of the plants, the animals, the succession of the seasons, and of all the other appearances of nature, would avail us little, if it did not bring along with it a more hearty love of nature, and a more ready perception of the practical use of all that nature presents to us. The book which treats of natural subjects should come as near as possible to the actual observation of nature; and for want of this attention, the ordinary books which are laid before the young and the ignorant, not only fail in imparting that knowledge which is professed to be communicated, but rob the parties of the desire of obtaining it, and thus in reality defeat the very object which they profess to serve. This species of deception is, unfortunately, not confined to natural history, but runs pretty largely through all the departments of knowledge; and although it is probably worse in the case of natural history than in that of any of the more abstract sciences which depend less upon observation; yet it is mischievous in every case, as withdrawing the attention from the reality and the practical enjoyment and use.

Mr. Mudie has accordingly fashioned this work on the Natural History of Birds in a style so lucid and entertaining as to make it amusing and instructive to the tyro, and sufficiently comprehensive to the adult. To render it as extremely useful as possible, too, we observe, that he has, in every instance, taken the simplest views of all those matters which come within the scope of the volume, and expressed them in the plainest language. Still, however, he truly asserts, "the beauty

of the subject cannot be fully appreciated, or reverence for those wonderful displays of creative wisdom which birds, more strikingly than any other creatures, evince, be duly felt, without some knowledge of the principles of mechanics, of geography, of the seasonal changes on the earth and in the atmosphere, and of various other collateral subjects." The treating of ornithology in a manner rather more scientific than is usually done, are strong arguments in its favour; and when the reader is persuaded that there is not only additional knowledge to be sought, but that the attainment of it is absolutely necessary to the full and perfect enjoyment of that which is already known, the value is materially enhanced, because it is calculated to effect the greater good.

In the general account of birds, as distinguished from the other classes of vertebrated animals, their structure and the nature of their more important functions, whether vital or active, are treated in a light and sketchy, but sufficiently explanatory manner. The details, as the author observes, "are for an after time—for letting the mind easily down on its pillow, after the contest is over, and the prize won. They are for reference, and belong to the humbler department of (what is called) memory; but the book of instruction ought to be of a more spirit-stirring character—it should enkindle the fire which it is to guide—arouse the mind which it is to illuminate."

Mr. Mudie's former work "On the Feathered Race," we have noticed in an antecedent number—we there luxuriated in the bold descriptions of his native land—in the volume before us, however, we find that he has diverged into a more difficult course, and has not invariably sufficient data on which to ground his theories. Many of his descriptions are vivid and picturesque; and when he peoples the magnificent scenery with its appropriate inhabitants, he delights and improves his readers. The general arrangement of the work, however, is too desultory. We absolutely disagree with any attempt to make the classification depend on mere extremities alone, and our opinion is more strongly confirmed when we consider Mr. Mudie's arguments. He states the fact of the blue tit, which he exemplifies by a very clever sketch, to be similar with those of the rook; yet we confess that we should be adverse to classing our little fluttering, merry friends of the blue cap and yellow waistcoat, the constant attendants on the kennel or kitchen door, in the same genera with the aristocratical and clerical rook, the tenant of a lofty avenue, or the secluded precincts of a college.

Perhaps there are few more interesting descriptions than that of the "Air Birds," inserted under the head of "General Analogies of Birds," of which the following is a short extract:—

"An air bird is one which uses the wing in immediately obtaining its food; thus an eagle which stoops to ground prey, a falcon which captures in the air but eats on the ground, a gannet which plunges in the water, and a swift or other insect feeder which feeds on the wing without stopping, are all equally air birds, arriving at their food by the action of the wings in that medium. So also a bird which immediately finds its food with the wings closed, or only with a partial use of them, subordinate to that of the feet, as in the birds which chase their prey under water, those that perch upon flexible stems and twigs, and a few others, is a ground bird. No matter whether it walks the bare earth, the vegetable surface, the boles or branches of trees, or perches, or climbs, or swims, or dives, if aerial motion does not form part of the art of capture, it is not an air bird. Many ground birds range far on the wing in search of places where they may feed or nestle; but the distinction between that and feeding on the wing, that is, arriving directly at the prey from the air only, is obvious enough. If the bird moves anew from any support but that of the air, that element has, as it were, rendered it up; and be the support rock, earth, plant, or water, there is an unbroken connexion with the ground."

In dismissing these observations, we are bound to declare that Mr. Mudie's "*Natural History of Birds*" is a very clever and a very useful production—that it is got up with great neatness, and at a very small cost, and is extremely reputable to all concerned in its publication.

Hector Fieramosca, or The Challenge of Barletta: an Historical Tale.
By the Marquis D'Azeglio. Translated from the Italian. Longman and Co. 1835.

We remember to have read this work in the original Italian some two or three years since, partly on account of its having excited considerable sensation in that country, but principally from the circumstance of its author being a relative of the justly celebrated Manzoni. It has since obtained popularity on the continent, and been translated into French; and now it makes its appearance in an English dress by a translator who has certainly done justice to the undertaking. There was an opinion, a very current one, at the time, that the author of "*I Promessi Sposi*" assisted in its composition, and that will sufficiently account for the eagerness with which it was sought on the continent.

This is principally a work of fiction, but there are so many historical facts and real characters mixed up with its imaginative scenes, that the positive information with which it abounds must give interest to its perusal. A brief historical account of the Challenge of Barletta, and the subsequent combat, usually referred to in history as the Battle of Quadrato, will be found in Mr. Roscoe's "*Life of Leo the Tenth*;" but those who have access to the works of Guicciardini, Muratori, Giovio, and others, will find it described more in detail, and the investigation will not be unattended with interest. The state of Italy, at the period thus described, is not so generally known as it ought to be. It is usual for travellers to speak of the Italian character as it exists at the present moment—they are now an oppressed, an enslaved people, but in former ages a braver or more chivalrous race of men never threw the lance, nor wielded the battle-axe.

The hero of this tale was the son of a gentleman of Capua, grown old in the wars that lacerated Italy during the fifteenth century—he resigned his sword to his son, the youth considering the military profession as the only worthy one—nor could he be expected to have ideas superior to the time in which he lived, when force of arms had the certain effect of increasing wealth and reputation. Nature had bestowed on him the precious gift of being, from his very disposition, urged on to whatever is beautiful, virtuous, and sublime. But, brought up as he had been from early years to the profession of arms, his correct judgment soon learnt what limit is of necessity required even to goodness itself, to prevent its degenerating into weakness; and the stern rigidity often acquired by being exposed to continual dangers, became in a heart like his a proper firmness—the worthy and valuable endowment of a manly bosom. His intellect increased with his age; and during the brief intervals of peace, instead of spending his leisure hours in the common pursuits of youth, he was fond of studying literature, and becoming acquainted with the ancient authors, and the honourable deeds of those who had shed their blood for the good of their country. In his early years he had accompanied his father, whom important business had called to Naples. At the Court of Alphonso he was introduced to the celebrated Pontano, who, struck with the boy's beautiful person, mind, and disposition, became much attached to him; and receiving him into the academy, since called the Pontanian Academy, he began to instruct him with great earnestness, and obtained in return from the youth that reverent affection which is commonly inspired by gratitude united with admiration. The love

for his country and for Italian glory, awakened by the elegant words of his master, could not remain cool in a heart like his; and in fact it increased almost to a degree of mania. He fought sword to sword with a French gentleman, his superior in age and strength, because the latter had spoken ill of the Italians—wounded him, and compelled him to confess the wrong in the presence of the King and Court. After various vicissitudes, having left Naples, on the fall of the royal family, Fieramosca followed the fortunes of Spain, in order to oppose in some manner the other too predominant power; and because Spanish pride appeared to him less intolerable than the vain-boasting of the French: besides, it seemed to him that an enemy who could only reach them by sea might be held of smaller account, and he considered that if the French could be driven out by their arms, it would be a less arduous enterprise to establish a good state of things in Italy.

Thus far we have described the intrepid warrior from whom the volume takes its title. His daring courage was put to the proof at an early age, by the challenge of La Motte, a French prisoner, who insultingly backed the valour of his own countrymen against the Italians. The challenge was accepted, twelve on a side were selected, and the day of engagement appointed. At the head of the Italian list was Fieramosca. The trial of strength took place, and the description is fervid and soul-stirring. It terminated in favour of the Italians and the total discomfiture of the French, and places the prowess and skill of Hector in a prominent and engaging point of view.

An historical narrative, without love, the ladies say, is an insipid affair. There is no lack of that ingredient, however, in the volume before us; and the valiant and intrepid hero is so scathed by a hopeless passion, that he eventually becomes a martyr to its sad and fatal entanglements. There is a powerful and high-wrought picture of his last moments of misery and despair, and of the desperation and madness which hurried him to his appalling extinction. This is a description of harrowing passion and reckless hopelessness which is rarely excelled, if ever equalled, and is beyond all doubt the best imagined and most happily described of the many well delineated representations with which the volume abounds.

The principal defect in this work is, that the narrative is too crowded with incidents, and that there is not lucidness enough in the arrangement. This, however, must not be charged to the translator, who has aimed at faithfulness, excepting in one or two instances in which he has judiciously shaded the warmth of colouring peculiar to the temperature of the south. Even the best translations usually abound with foreign idioms, and with other encroachments on the vernacular language; in the work under consideration, however, there is less of this defect in style than is usually observable. Altogether, we are disposed to concede to the translator much praise for his fidelity, and his discriminating taste and judgment in pruning, when pruning was absolutely necessary. We may venture to predict, we think, notwithstanding the trivial defects we have pointed out, that this interesting volume will become a favourite with all such readers as delight in history and romance judiciously and pleasurably blended.

The Revolutions of the Globe familiarly described. By Alexander Bertrand, M. D., translated from the French by J. C. Horry. London: Ridgway and Sons.

To present a comprehensive view of the actual state of any science claims the next grade of merit to that of advancing it. The work before us appears to aim at conveying a knowledge, in a popular style, of the

present state of geological science ; its facts are brought out clearly and broadly, without reference or leaning to any particular theory. But its theories are also ably discussed in the Introduction, and in an Appendix added by the translator. This arrangement appears particularly judicious in a science which, although still in its infancy, has experienced so many revolutions ; for while we have in the body of the work, as far as a book can form a substitute for the study of the actual phenomena, its facts plainly and succinctly laid before us, unencumbered by theory, we may also benefit by the deductions of those who have preceded us in our labours, by consulting the commencement and concluding part of the volume.

We present our readers with a short extract, but strongly recommend the perusal of the entire work :—

“Bones of fossil elephants have been found, at all times ; but, till lately, the nature of these bones was always misunderstood. It is to the discovery of them, that we owe the fabulous histories of the digging up of the bodies of ancient giants ; for, at a period when anatomy had made so little progress, the love of the marvellous could so much the more readily seize such events, to accredit the ideas which affect the imagination ; as the elephant is (except as to size) one of the animals whose skeleton presents the most resemblance to that of man. An entire volume would be taken up in detailing the accounts of fossil bones of great quadrupeds, which ignorance, or fraud, have represented to be the remains of human giants. The most celebrated of all, is that of the skeleton which, in Louis the XIIIth's reign, was pretended to be that of *Teutobochus*, King of the Cimbri, who fought against Marius. The following are the circumstances which gave rise to this tale :—

“On the 11th of January, 1613, in a sand-pit, near the *Chateau de Chaumon*, between the towns of Montricoux, Serres, and Saint Antoine, some bones were found, several of which were broken by the workmen. A surgeon of Beaurepaire, named Mazurier, informed of this discovery, possessed himself of the bones, and contrived how to turn them to good account. He gave out that he had found them in a sepulchre thirty feet in length, upon which were inscribed the words *Teutobochus Rex*. He added, that, at the same time time, he found fifty medals, bearing the head of Marius. He inserted these stories in a pamphlet, by means of which the curiosity of the public being aroused, he exhibited, for money, the bones of the pretended giant, as well at Paris as in other cities. Gassendi names a Jesuit of Tournon, as the author of the pamphlet, and proves, that the pretended antique medals were fabricated ; as to the bones, they were those of an elephant.”

The Works of William Cowper ; his Life and Letters by Wm. Hayley, Esq. now first completed by the introduction of Cowper's Private Correspondence. Edited by the Rev. T. S. Grimshawe, A. M. Vols. I. and II. London : Saunders and Otley.

Hayley's Life of Cowper is familiar to most reading men, but it has never been considered a perfect work. His mind, however literary and elegant, was not precisely qualified to present a religious character to the view of the British public ; we are not surprised, therefore, that his reflections should be occasionally misplaced and injudicious. In his anxiety to refrain from exhibiting Cowper too prominently in a religious garb, he has ingrafted defects, and rendered his work faulty and incomplete. The termination of the copyright of Hayley's Life of Cowper, and sole and undisputed access to the private correspondence collected by Dr. Johnson, it appears, has enabled the editor to present, for the first time, such a complete edition of the entire works of the author of “The Task” as no other person can hope to accomplish, because all others are debarred from the sources of his exclusive derivation. Upwards of two hundred letters are thus incorporated with the former work of Hayley in their due and chronological order ; and the merits of this private correspondence are attested in a letter addressed to Dr. Johnson, by that distinguished literary judge the late Rev. Robert Hall, of which the following is an extract :—“I have always considered the letters of

Mr. Cowper as the finest specimen of the epistolary style in our language; and these appear to me of a superior description to the former, possessing as much beauty, with more piety and pathos. To an air of inimitable ease and carelessness they unite a high degree of correctness, such as could result only from the clearest intellect, combined with the most finished taste. I have scarcely found a single word which is capable of being exchanged for a better. Literary errors I can discern none. The selection of words, and the construction of periods, are inimitable; they present as striking a contrast as can be well conceived to the turgid verbosity which passes at present for fine writing, and which bears a great resemblance to the degeneracy which marks the style of Ammianus Marcellinus, as compared to that of Cicero or of Livy. In my humble opinion, the study of Cowper's prose may on this account be as useful in forming the taste of young people as his poetry. That the letters will afford great delight to all persons of true taste, and that you will confer a most acceptable present on the reading world by publishing them, will not admit of a doubt."

This work is got up in a style of neatness most creditable to the publishers—it is a choice specimen of the typographic art. The plates, by Finden, are beautifully graved, and the subjects are chosen with the discrimination which taste and genius only can impart. We may truly affirm that the volumes are altogether as tasteful in appearance as they are precious in matter.

Provincial Sketches. By the Author of "The Usurer's Daughter," "The Puritan's Grave," &c. &c. London: Churton, Holles-street.

This is anything but a dull and narcotic volume—in fact it is full of wit and humour, and evinces an intimate knowledge of real life in situations the most opposite to each other, and the most grotesque. It is thrown into distinct stories, the titles of which are—The Rival Farmers—The Country Newspapers—The Snug little Watering Place—Amateur Concerts—Itinerant Lecturers—Itinerant Artists—The Public Library—Gentility—Village Choristers—and Dame Deborah Boreham's Almshouses. They are all good of their kind, are replete with droll and whimsical incidents, and so faithful to nature, that the dullest soul must be struck with their aptitude and comicalness.

It unfortunately happens that we did not receive this exquisite *morceau* before our pages for the present number were fully occupied; we must defer, therefore, all extracts to the ensuing month, when, if not too much pressed for room, we will advert to the subject again, and give such a specimen from the work itself as shall make it speak in its own commendation.

Wanderings through North Wales, by Thomas Roscoe, Esq. Author of "The Landscape Annual," embellished with highly finished engravings, by W. Radclyffe, from drawings made expressly for the work, by Cattermole, Cox, and Creswick. Part II. London: Simpkin and Marshall, and Charles Tilt.

This charmingly illustrated work, of which we had occasion to speak so warmly in our preceding number, has presented another admirable specimen of the taste and skilfulness of its designs and execution. It contains three sweetly delineated views, by Cox, of Harlech Castle, Bridge over the Llugwy, and Snowdon, engraved in Radclyffe's best style. If we have spoken highly of the first number, we are bound with equal justice to speak as favourably of the present—and we have considerable gratification in being enabled to state, from the most authentic source, that it has received all the encouragement which we predicted.

Indeed, if works of this stamp are not liberally encouraged, how can it be expected that a taste for the fine arts can flourish—without the aid of liberal patronage, of what avail are the toils of the artist and the life-destroying intensity of the lettered? Of the three plates in this number we scarcely know to which the preference is due, they are all so inimitably finished. The descriptive part of the work, too, we perceive, maintains its high reputation—and it is, altogether, one of the very rare productions on which the asperities of criticism cannot justly alight.

LITERARY AND SCIENTIFIC.

WORCESTERSHIRE NATURAL HISTORY SOCIETY.

ON Tuesday, the 31st of March, Mr. B. Maund, F. L. S., delivered a Lecture "On Geology corroborative of the Mosaic Writings," to a very crowded assemblage of the Members of this Society, at the Guildhall.

In reference to the relation between the modern science of geology and the Mosaic writings, the Lecturer observed "The subject has been embarrassed by the misconceptions, as well of the friends as of the opponents of Revelation. If sceptics have presumed to argue without a sufficient acquaintance with the facts of science, it is not less true that those of established religious principles have injured the cause of revealed religion by a similar defect of information. Some, too, may have done the same by an unphilosophical timidity in approaching the subject. Some well-meaning, but weak-minded persons are afraid of discussion on such subjects, lest something should be found in the page of nature subversive of their established faith. This, however, is paying a very poor compliment to Revelation. This weakness of mind (although it may be an amiable one) is inconsistent with a sincere and enlightened love of truth. Let Revelation and Science be brought fearlessly into opposition. Let facts supersede surmises, and Revelation will trample on Scepticism."

The Lecturer then explained in a very clear and lucid manner the rapidity with which the secondary strata are sometimes deposited; and remarked,—“We have satisfactory evidence not only of the mutability of rocks, but also of the rapidity of their solidification. In a chalk formation in Ireland, where convulsions have rent the strata asunder, and protruded from beneath into the chasm, or dyke, a quantity of basalt in a state of fusion, its great heat combined with the superincumbent pressure, has, for several feet from the dyke, converted the chalk into granular marble. Arthur's Seat, near Edinburgh, has, in like manner, been divided, and the injection of greenstone, in a melted state, has converted the sandstone near it into a compact jasper-like rock. Red sandstone, under similar circumstances, has been converted into hornstone—slate clay into flinty slate—sandstone, of the Isle of Skye, into solid quartz;—and in Anglesea an instance is noticed, by Professor Henslow, where common shale became highly indurated, and was found to contain garnets, the result of its change of character.”

These and other evidences were adduced by the Lecturer to shew that rocks may be rapidly formed, and also solidified, and that the extravagant theories adopted by some geologists are not founded on that basis of inductive truth which should be the guide of all scientific inquiry. These arguments were not advanced to confine the geologist to a consideration of the present order of things belonging to our planet, for Mr. M., like most other geologists of the new school, admits that its surface may have undergone many successive changes, and have been inhabited by many races of living beings, each being adapted to the state of the globe during the period of its existence.

After some explanatory remarks and evidences of the Deluge, its effects, &c., the Lecturer thus concluded:—

“These evidences have been summed up in so masterly a manner by Dr. Buckland, that I cannot do better than quote the words of that eminent geologist.

“The proofs of an universal deluge are to be found in the following facts:—

“1. The general shape and position of hills and valleys; the former having their sides and surface universally modified by the action of violent waters; and presenting often the same alternation of salient and retiring angles that mark the course of a common river. And the latter, in those cases which are called valleys of denudation, being attended with such phenomena as shew them to owe their existence entirely to excavation under the action of a retiring flood of waters.

“2. The almost universal confluence and successive inosculations of minor valleys with each other; and final termination of them all in some main trunk which conducts them to the sea; and the rare interruptions of their courses by transverse barriers, producing lakes.

“3. The occurrence of detached insulated masses of horizontal strata, called outliers, at considerable distances from the beds which they once evidently formed a continuous part, and from which they have at a recent period separated by deep and precipitous valleys of denudation.

“4. The immense deposits of gravel that occur occasionally on the summits of hills, and almost universally in valleys, over the whole world, in situations to which no torrents nor rivers, (such as are now in action) could have drifted there.

“5. The nature of this gravel, being in part composed of the wreck of neighbouring hills, and partly of fragments and blocks that have been transported from distant regions.

“6. The nature and condition of the organic remains deposited in this gravel; many, though not all of them, identical with species that now exist; and very few having undergone the process of mineralization.

“Their condition resembles rather that of common grave bones than of those fossil bones which are found imbedded in the regular strata; being in so recent a state, and having undergone so little decay, that if the records of history and the circumstances that attend them, did not absolutely forbid such a supposition, we should be inclined to attribute them to a much later period than the Mosaic Deluge, and certainly there is, in my opinion, no single fact connected with them, that should lead us to date their origin from any more ancient era.

“7. The total impossibility of referring any one of these appearances to the action of ancient or modern rivers, or any other causes that are now, or appear ever to have been, in action since the last retreat of the diluvian waters.

“8. The analogous occurrence of similar phenomena in almost all regions of the world that have hitherto been scientifically investigated, presenting a series of facts that are uniformly consistent with the hypothesis of a contemporaneous and diluvian origin.

“9. The perfect harmony and consistency in the circumstances of those few changes that now go on; e. g. the formation of ravines and gravel; mountain torrents; the depth and continual growth of peat bogs; the formation of tufa, sand-banks, and deltas; and of the filling up of lakes, estuaries, and marshes. These changes are progressive, and have been so from the last great catastrophe of the earth, and their present state perfectly coincides with the hypothesis which dates the commencement of all such operations at a period not more ancient than the Mosaic deluge.

“All these, whether considered collectively or separately, present such a general conformity of facts tending to establish the universality of a recent deluge, as no difficulties or objections, that have hitherto arisen, are in any way sufficient to overrule.”

ON THE PROGRESSIVE DEVELOPMENT OF THE VEGETABLE ORGANIZATION.

On the evening of the 14th of April, a lecture “On the Progressive Development of the Vegetable Organization,” was delivered before the Worcestershire Natural History Society, by Dr. Streeten. After stating that the subject formed a counterpart to the Development of the Animal Organization, so ably treated by Mr. Walsh upon a former occasion, the lecturer proceeded to describe a globular vesicle, as affording the most simple idea of a primary cell. The *Lepraria viridis*, or powdery green substance, so common on trees, old palings, and in damp situations, was instanced as apparently consisting of these simple vesicles, slightly

agglomerated together, so as to form a loose continuous crust. Various of the algæ, or sea weeds, were then introduced, as illustrative of the different modes of union and progressive complication of these vesicles in the formation of the cellular structure, and the manner in which this complication took place by the gradual extension of the primary cells and successive development of secondary vesicles, under varying circumstances of pressure, was pointed out. After a brief allusion to the great division of plants into cellular and vascular, extended and interesting details of the diversities of the cellular and vascular structures, and the intermediate links connecting them, were brought forward. It was then shewn that notwithstanding the vast difference between the extremes of the vegetable kingdom, the gradation from one family of plants to its near allies, and from one individual species to others of the same family, was often so slight as to render the separation of allied plants and families a matter of considerable difficulty to the botanist. Returning to the consideration of the more simple plants, the lecturer successively alluded to the structure of the Lichens, Algæ, Hepatici, Mosses, &c. tracing the increasing complication of their forms, and their transition into and connection with each other; from these, proceeding to the monocotyledonous tribes, of which the grasses were especially noticed, and the more complex structures of the dicotyledonous plants. After showing that a general similarity prevailed in the internal organization and external form throughout the whole, the development of the several parts of which these more perfect plants consist—of the root, stem, and branches—leaves, flowers, and fruit, concluding with the bulb and the bud, both of which were shewn to contain the rudiments of the future plant, was successively detailed. The lecture was concluded by an appeal to the audience upon the utility and dignity of these pursuits, and the good influence which they were calculated to exercise upon the public mind. We regret that we have not space for a more extended analysis, but we hope on a future occasion to be able to lay before our readers some of the curious particulars to which we have briefly alluded, in a different shape.

We cannot close this concise notice without bestowing our unqualified praise on the beautifully executed drawings exhibited on this occasion in illustration of the subject.

THE adjourned Quarterly Meeting of the Worcestershire Natural History Society took place on Tuesday, the 14th instant, at which Dr. Hastings presided. After some preliminary observations of a general nature, the following Donations and New Subscribers were officially announced:—

Beautiful specimen of Fossilized Sponge, from Mr. Warde, of the Athenæum; "Newman's Grammar of Entomology," with plates, from Mr. G. Newman, of Leominster, an Honorary Corresponding Member; various specimens from the Isle of Staffa, from Mrs. C. L. Perrott; a beautiful variety of the *Mustela Erminea*, (shot at Wolverton,) from Mr. H. Deighton, High-street; and L'Antiquité Expliquée et Représentée en figures," 6 vols. 4to., from John Simpson, Esq., LL. D. Shrub's Hill.

A donation of ten pounds each having been received from R. Berkeley, jun. Esq. Spetchley, and the Rev. T. H. Newport, of Thorneloe House, those gentlemen were elected life members.

The new Annual Subscribers of one guinea each, elected Members of the Society, since the last Report, were—Mr. John Herbert, Powick; Mr. John Herbert, jun. Powick; Mr. W. Holden, Lark Hill; Mr. Rob. Allies, Hill House; Mrs. Wheeler, Foregate-street; Mr. Gossage, Rushford; Mr. Childe, High-street; Mr. Ledbroke, Surgeon, Worcester.

The Curator's Report was then read, (in every respect a satisfactory one) of which the following are the leading particulars:—

"Since the last Report was presented to the Society, various donations have been received for the Museum, the most interesting of which is a collection of Australian Birds, from William and Hyla Holden, Esqrs. Of these, 60 specimens, many of the genus *Psittacus* have been set up, and a considerable number yet remain to be done. Numerous specimens in Geology have been likewise presented, which have been classified as far as the present limited space will allow; but another receptacle is much wanted for a more perfect elucidation of the series. Various Insects, Plants,

and Miscellaneous Curiosities from different public-spirited individuals, have been also added to the collection. The following is a synopsis of the present contents of the Museum:—*Mammalia*, 36 specimens—*Birds*, upwards of 500 individuals—*Chelonia and Sauria*, 40—*Ophidia*, 159—*Batrachia*, 4—*Fishes*, 4—*Shells of the Mollusca*, 550—*Insecta*, 8 cases, chiefly of the Coleopterous, Lepidopterous, and Dipterous tribes—*Radiata*, 3—*Zoophyta*, 28—In Geology and Fossil Remains there are upwards of 2,000 specimens arranged in the order of the descending strata, 3 drawers devoted to Mineralogy, and a case dedicated to British Oology.—Besides these, there are various Miscellaneous Curiosities, as the horns of several extinct and existing Quadrupeds, Esquimaux Dresses, Snow Shoes, Weapons, Indian Belts, &c.—Among the more recent acquisitions to the Ornithological department, is a beautiful pair of the Bohemian Chatterer (*Ampelis garrulus*, Lin.), a rare and uncertain visitant, the male of which was shot at Radford, near Evesham, and the female at Claines, both during the past winter.

WORCESTER LITERARY AND SCIENTIFIC INSTITUTION.

On Monday, the 6th of April, Mr. Sémonin delivered a lecture on the "Study of the French Language."

The lecturer commenced by a few observations on the utility of learning French, in the course of which he adverted to the way French works are generally translated in this country. This led him to instance a great many blunders committed by English translators: we shall subjoin a few for the amusement of our readers.

Those who have read Gil Blas, may recollect that part where Rolando takes Gil Blas through the different parts of the cavern. The original runs thus—"Il me fit traverser plusieurs chambres: dans les unes il y avait des pièces de toile, dans les autres des étoffes de laine et de soie. Dans une autre de l'or et de l'argent et beaucoup de vaisselle à diverties *armoiries*." He made me pass through divers apartments, some of which contained bales of linen, others of silks and stuffs. In one I perceived gold and silver, and a great quantity of plate in different *cupboards*. Smollett renders the French word *armoiries* (coats of arms) by the English word *cupboards*.

In the Journal of Las Cases we find that about the time of the battle of Wagram, the son of a Protestant minister had laid a plan for the assassination of Napoléon, "en pleine parade," that is, in the middle of the parade; but, according to the English translator, Napoléon was to be assassinated *with due parade*.

The translator of Madame de Genlis's Memoirs committed some strange blunders. The word "*rôtie au vin*" (mulled wine), he translated by *some roast meat prepared with wine*. "*Un livre d'heures*" (a prayer-book) by *a book of hours*. Madame de Genlis, describing her apartments at the Palais royal, says in the original—"Il était meublé magnifiquement, tapissé en damas bleu," &c. They were magnificently furnished, hung with blue damask, &c. The translator makes her say—"My apartments at the Palais royal were magnificently furnished, *carpeted* with blue damask," &c. The following blunder is very ludicrous. We shall give the English translation only; it will be a kind of riddle for our readers. Madame de Genlis was residing in a convent. "When any one," says she, "wished to come in, he rang at the grate, and the nuns, pulling down their veils, went to open the door; besides this precaution we had a little *tower* built beside the grate, in which were laid our letters, our packets, and the dishes for our meals." What does this mean? Why, it means nothing at all. The translator had mistaken the word *tour*, a turn-about, a sort of turning box in a convent, for the word *tower*, a tower.

Another of Madame de Genlis's works, entitled "*Nouveaux Contes Moraux*," is translated in very nearly the same intelligent manner. In the original it is said—"La Duchesse courut à une fenêtre et vit à travers la *jalousie*, le Baron et M. de Ferriolles descendre de voiture." The translation ought to have been—"The Duchess ran to a window and beheld, through the *blinds*, the Baron and M. de Ferriolles alight." But the translator thought that the French word *jalousie* had no other meaning than *jealousy*, and translated the above passage thus—"The

Duchess ran to a window, and beheld with *the eye of jealousy* the Baron and M. de Ferriolles alight."

The lecturer next proceeded to offer some remarks on the grammars and dictionaries generally used in teaching the French language. "An immense number of French grammars have already been published in this country, and every month produces a new one; but notwithstanding the ostentatious pretensions of some, and the quackish titles of others, I do not find they are better, or even so good, as those that are now commonly used by the generality of teachers, I mean Hamel's, Levizac's, and Wanostrocht's, and were I to express my humble opinion on the merit of these three last mentioned works, I should say that an excellent grammar might be compiled by combining the simple plan of Hamel's with the grammatical knowledge of Levizac's, and the familiar exercises of Wanostrocht's. After all, it matters little what grammar a master uses. An efficient instructor should be able to supply the place of the grammar, and indeed to give a great deal of explanation that is not found in it. As to the dictionaries, there is nothing that calls more loudly for improvement. I do not hesitate to assert that there is not one good English and French, or French and English dictionary extant. Boyer's Dictionary is very defective, Levizac's, in spite of its improvements, is bad enough, and Nugent's is the worst of all. They are not only very deficient in examples of French idioms, and behind the present state of the French language as relates to the more modern and newly-established modes of expression, but of the words in the most common use, some are altogether omitted, others are translated in such a manner as to mislead entirely the French student."

Here the lecturer adduced many examples in proof of the justice of his charge.

We regret that our limits will not allow us to follow the lecturer in his remarks on the different modes of teaching the French language, and especially on the system called the Hamiltonian. He illustrated the utility of exercises on Homonymous words by relating an adventure which occurred to Mr. Reynolds, the dramatist, and in which he cut rather an awkward figure. An account of the scene, which took place at Dessein's Hotel, at Calais, is extracted from that portion of his diary which describes his excursion to the continent, when about seventeen years of age, on some business for his father:—"Wanting to walk on the Pier," says Mr. Reynolds, "I asked the garçon, who spoke English very tolerably, the French for it. He, thinking as *Milord Anglais*, I could mean nothing but *peer*, a lord, 'replied *pair*. Away I then went, and passing over the market-place and draw-bridge, stumbled on the pier, without having had occasion to inquire my way to it by the garçon's novel appellation—there I remained, strutting my half hour, till dinner time. At the *table d'hôte*, the Commandant of the troops of the town sat next to me, and among other officers and gentlemen at the table, were the President of the Council at Ratisbon, a Russian Count, and several Prussians; in all amounting to about twenty, not one of whom (as it appeared to me) spoke a word of English. I thought I could never please a Frenchman so much as by praising his town: "Monsieur," I said condescendingly to the Commandant, "J'ai vu votre pair," meaning I have seen your *pier*; but which he naturally understood, I have seen your father. This address from a perfect stranger surprised him. "Il est beau et grand, Monsieur," I continued. The Commandant examined me from head to foot with an astonishment that imparted to me an almost equal share. I saw there was a mistake, and I attempted to explain, by pronouncing very articulately, "Oui, Monsieur, j'ai vu votre pair—votre pair, sur le havre." "Eh bien, Monsieur," replied the Commandant, "Et que vous a-t-il dit? (What did he say to you?) I was astounded, and looking round the room for the keeper of the supposed madman, I discovered that the eyes of the whole company were upon me. "Monsieur," I cried, again attempting to explain, with as much deliberation and precision, and in as good French as I could command—"Monsieur, est-il possible que vous résidiez ici et que vous ne connaissiez pas votre pair—votre pair—si long!" This speech only increased the incomprehensibility of the whole conversation; and the Commandant beginning, in rather *haut en bas* terms, to demand an explanation, like all cowards, when driven into a corner, I became desperate. "Messieurs," I cried, somewhat boisterously, "Il faut que vous connaissiez votre pair! le pair de votre ville, qui est fait de pierre, et a la tête de bois." This was the *coup de grâce* to all decorum; every Frenchman abandoned himself to his laughter, till the room fairly shook with their shouts, and even the Commandant himself could not help joining them. "Allow me, Sir," said a

gentleman whom I had not previously observed—"My dear Sir," interrupted I, "you are an Englishman, pray, pray explain." "Sir," he replied, "you have just told this gentleman, pointing to the Commandant, *that his father is the father of the whole town, that he is made of stone, and has a wooden head!*" I was paralyzed. "Tell me," I cried, as if my life depended on an answer—"what is the French for *pier*?" "*Jetée*," he replied. I had scarcely sense enough left to assist the Englishman in his good-natured attempts to unravel the error. He succeeded, however, and then commenced, in French, an explanation to the officers. At this moment, the waiter informed me that the St. Omer diligence was about to depart. I rushed from the scene of my disgrace, and stepped into the vehicle, just as the termination of the Englishman's recital exploded an additional *éclat de rire* at my expense."

After some further remarks on the Hamiltonian system of teaching languages in fifty lessons, the lecturer concluded with observing that, "if Mr. Hamilton (or any one who teaches on the same plan) had the good fortune to fulfil that which their system promises, young and old, pupils and masters, would be eager to learn a secret of such virtue, and that this method would then be adopted by all—but unfortunately, there is no *rail-road* yet to the acquirement of the French language, and until it has been practically demonstrated that the power of steam can be applied to the acceleration of improvement in the mental faculties, other professors will continue to follow their own system, varying it according to the age, abilities, and application of the pupil, and introducing all those modifications that may be deemed necessary. They will continue to teach without fixing any limit to their instruction, because they are persuaded that the acquisition of knowledge can only be obtained by labour. Let us then be persuaded by fact and experience. All those who have learned languages, and have desired to know them thoroughly, that is, to speak and write them with grammatical purity, were obliged to labour hard, and all those who wish to learn them in this manner, must labour hard also. A fair method of teaching on the part of the master, assiduity and application on the part of the pupil, may accelerate this desirable end, but will never be able to convey the power to go beyond the bounds which the Author of Nature has assigned to the human intellect. Let every man, who is desirous of knowledge, be persuaded of this incontestable truth, and then he will neither be disappointed in his pursuits, nor become the victim of his own credulity.

BIRMINGHAM MECHANICS' INSTITUTION.

We have received from a correspondent the last Annual Report of the Birmingham Mechanics' Institution, and are glad to perceive that it is advancing in public estimation as well as in utility. In this Institution a weekly *lecture* is delivered on some subject connected with physical or moral science;—with the arts, history, or literature—*classes* are open four evenings in each week for the study of writing, arithmetic, mathematics, drawing, and the Latin and French languages—and the books, in a library of about 1100 volumes, circulate freely among the subscribers.

The lectures, partly by gratuitous and partly by stipendiary lecturers, during the last year, have been on the following subjects:—Electricity, Pneumatics, Mental Arithmetic, Geology, Insect Transformations, Linear Perspective, Botany, Rowley Rag, Gravitation, the Human Voice, Architecture, Education (by Mr. John Smith, of Liverpool), the Study of Languages, a Course of Twelve Lectures on Chemistry (by Mr. Woolrich, the Lecturer to the Medical School of Birmingham), the Properties of the Atmosphere, the Temperature of the Earth, Temperance and Temperance Societies (by J. S. Buckingham, Esq. M. P.), Elocution and Oratory, three Lectures (by Mr. Chas. Pemberton), a highly-interesting gratuitous Exhibition and Elucidation of the Hydro-Oxygen Microscope, by Mr. Carter.

Vigorous efforts are making to raise funds for the erection of a Hall, or building for the entire purposes of the Institution, which, the Committee conceive—and we think justly—will greatly conduce to the prosperity of the Institution. Among the contributors to this fund, we are pleased to discover the names of the Rev. T. J. Law, the respectable Chancellor of the diocese of Lichfield and Coventry, the Members for the borough of Birmingham, and several gentlemen who are

familiar to us, and highly esteemed in that town. The President for the current year is Sir E. Eardley Wilmot, M. P.

The Report concludes thus:—"Such then is your position as to the regular action of the Institution. The *classes* more than ever satisfactorily conducted; the *library* gradually increasing, and its utility recognized; and the lectures as well in prospect as in retrospect,—for utility and interest, equal, or superior to those of any former period.

"Your Committee also consider the pecuniary affairs of the Institution to be in a sound and *healthy* state. Enjoying a much larger income than usual from subscriptions and check receipts during the past year, a small portion only has been applied to the gradual reduction of the remaining debts outstanding, and the remainder has been liberally, and they trust, judiciously expended in the purchase of those intellectual advantages to which they have adverted; and this expenditure has reacted, and if the anticipations of your Committee be not falsified by coming events, will continue to react, by inducing the rapid increase of the list of Members;—so that the *Mechanics' Institution of Birmingham* may continue to advance in prosperity, and to extend its useful action,—may take rank in the public eye, amongst the most valuable establishments of the town,—and claim, from its magnitude and importance, as well as from the excellence of its conduct,—the admiration and the willing aid, as well as the cordial approbation of the inhabitants of this town and neighbourhood, of every rank and of every shade of opinion; taking its full share in the great work of the development of the powers of the human mind,—urging on the approach of the period, when shall be realized the aspirations of the purest and soundest philanthropy,—‘The same Education, and THE BEST,—for ALL CLASSES.’”

To our copy of the Report are appended some letters on the subject, which have appeared in the *Birmingham Journal*, signed “W. H. S.,” from which we present the following extracts:—

“I hear and read assertions and statements of facts, produced to show that the great bulk of the population, in the most civilized countries, are oppressed by existing circumstances, deficient in those means of enjoyment, which ought, under wise arrangements, to be attainable by every human being;—that their condition is, in short, far inferior to what it *ought to be*, speaking as philanthropists,—what it *might be*, speaking as statist, and in reference to our national resources. I may be told that I am querulous and fanciful; that the condition of the population generally, of these kingdoms for instance, has, in fact, greatly improved during the last half century; that the working classes were never better, never *so well* taught, fed, clothed, and housed, as at present. It may be so, and I believe it is so, but the improvement is comparatively trivial, and the complaints continue. Men have not their due, and they are, and ought to be, discontented. The prevalent discontent, in truth, properly considered, so far from being an evil to be deprecated, is one of the most favourable signs of the times. ‘How is it,’ asks an able periodical writer, ‘that the mechanic of the present day is at the same time better off and more dissatisfied than were the operatives of past generations? He has more knowledge, more mind—he *wants* more. He believes that more is to be had, and, eventually, he will have it. Very silly it is to *lecture him* out of his craving. It is nature’s provision for the progress of society. * * * * * You cannot stay the change—why should you?’”

“These anticipations are now very generally entertained, and these opinions indulged by the soundest and most reflective political economists. * * * The degree and mode of *physical* amelioration to be desired varies according to the varying impressions of the several individuals, but in the *means* all agree. EDUCATION, EDUCATION, EDUCATION, is the universal cry. Education—full, free, and equal, without distinction of class or caste.”

“‘The people,’ observes Mr. Chandos Leigh, ‘cannot know too much, but they may easily know too little.’” There is in this short sentence a terseness and a

* The following is an extract of a letter from Chandos Leigh, Esq. to the Vice-President of the Mechanics' Institution, dated “Stoneleigh Abbey, Dec. 16, 1834.

“No man is more favourable to Mechanics' Institutions than myself, and I trust they will be established throughout the kingdom. To use the beautiful language of Robert Hall: ‘They are the expedients for forming a sound and virtuous population. If there be any truth in the figure by which society is compared to a pyramid, it is on *them* its stability chiefly depends. The elaborate ornaments at the top will be a wretched compensation for

condensity which give it the character of an aphorism. It is marked by a frankness and a boldness worthy of the English gentleman; the man of wealth whose acres are counted by thousands; the lord of estates whose unbroken circuit is measured by miles. And shall a man holding so large a stake in the country fearlessly avow his conviction that from knowledge diffused with measureless liberality, no evil need be feared, but that it is the ground of the most lively hope? And shall the leaders of a sagacious and active commercial manufacturing community, with prudish coyness, coldly hesitate their doubts of the safety of diffused intelligence, look on indifferently, or prefer to remain ignorant of the proceedings of the institution, an allusion to which called forth the burst of zealous philanthropy just quoted?

"When the value and capacity of the *human mind* are considered, how monstrous seems the absurdity, how culpable the *waste*, of suffering that inestimable gift of the Creator, which causes its possessor to rank but 'a little lower than the angels,' to be disregarded—such a mine of wealth to lie unworked—such a treasure to be hidden in a napkin, instead of being put out to profitable usury by action and cultivation! Who would not laugh at the prodigal stolidity of the man who, having the command of a machine with power to move mountains, should employ it only in drawing of corks and polishing of boots? But such folly were but a type of that which would forbid and impede, or would wilfully neglect to assist in the improvement of the minds of men and of women!"

"Of all the powers put into action for the attainment of the great end, to which I alluded at the close of my last letter, namely the intellectual improvement of the *people*; and many persons would be surprised were they conscious of the total under-current of thought and reflection already excited *by the people*, but unobserved by the careless eye;—of all these acting powers, I say, none are so well organized,—so well calculated to be effective, as *Mechanics' Institutions*."

"Yet are they not the *originators* of the spirit of inquiry, of the excited thirst for knowledge which exhibit themselves on every side, but the agents to guide that spirit, the benign mediums for satisfying that thirst. It was finely said by Lord Brougham, when he first moved the establishment of these Institutions:—'The question is not *now*, whether the people shall have knowledge or not: but whether the knowledge obtained shall be such as will be useful.'

"*Mechanics' Institutions* claim to be considered the guides and directors to *useful* knowledge; they are the *regulators*, the *safety-valves*, the *governors* of the great intellectual machinery, the *million-mind-power-engines*, which circumstances *will* call into action. The advance of intellectual improvement, it is true, 'cometh not with observation;' that is, those who are indifferent to it, may continue for a time unconscious of its progress. The impetus given by the energetic mind of Lord Brougham, though not generally seconded by persons eminent for wealth and station, still, however, continues in wholesome activity. New Institutions are continually being announced. The philanthropist may lament over their comparatively slow progress; and the admirer of antiquity, the slave of precedent, the blind *laudator temporis acti* may sneer at their small visible effects. But both are in error. The seed is sown, and will duly spring into life; and its fruit will be for the healing of the nations."

The writer of these letters, we understand, is Mr. W. Hawkes Smith, the Vice-President of the Institution. We have before us the MS. copy of a lecture lately delivered by this gentleman, "On the Tendency and Prospects of *Mechanics' Institutions*," in which his views, both general and individual, are freely developed. It is our intention in our next number to offer some connected extracts from this lecture, which, in our opinion, contains some valuable reflections, accompanied by useful practical observations.

the want of solidity in the lower part of the structure. These are not the times in which it is safe for a nation to repose in the lap of ignorance."

"I am one of those who always considered the intelligence of the working people to be much undervalued by the prejudices of some and the pride of others. This intelligence, overruling times and circumstances, often shoots up by the native force of the seminal principle; but when aided and assisted by such institutions as yours, will unceasingly, in time, bring forth the richest fruits.

"I do not think the people can know too much, but they can easily know too little; and a half-reasoning multitude, when their passions are excited, is one of the most dreadful moral scourges ever inflicted on humanity.

"Let me congratulate you on having such a liberal and well-informed President as Sir E. E. Wilmot at the head of your institution. That that institution may go forward in harmonious accordance with the 'spirit of the age' is my sincere wish."

NEW PATENT.—RECLINING CYLINDER BEDSTEAD.

To assuage the pangs of physical suffering, and to soothe the weary hours of bodily debility, are among the nobler efforts of humanity; and to mitigate the trials of the sick chamber, and to lessen the gloom that hangs about the bed of the invalid is, assuredly, to become a benefactor to society. The important and invaluable contrivance, denominated the reclining cylinder bedstead, for which a patent has been recently, obtained and which, on the point of adoption in St. George's Hospital, London, has been minutely inspected and most cordially approved by *written* testimonials, by the whole of his Majesty's physicians and surgeons, and the most eminent practitioners in the metropolis, is one amidst the many brilliant evidences of that astonishing progress in mechanical science for which the present age is remarkable. The inventor, Mr. James Cherry, of Coventry, has devoted himself with the most unwearied assiduity to the construction and ultimate perfection of his design, and this extraordinary piece of mechanism, elegant in appearance, and of the utmost simplicity in its arrangements, stands forward as a proof of the singular patience and ingenuity of this gifted individual. For the information of our professional readers, and the satisfaction of the invalid, we subjoin a description of an article which may, truly, be characterised as one of "comfort to the sick, of convenience to the nurse, and of refined luxury to the convalescent:—"

The sacking is attached to two cylinders running lengthwise, one on each side of the bed; these cylinders contain several springs upon the chronometer principle, which propel them upon the axles outwards, or right and left from the centre of the bed. The sacking, when the bed is not in use, is always at full stretch; but when it receives the weight of the body, the springs relax, and the bedding is sunk to a concave of twelve inches; the feathers encompassing the patient and relieving the back from the pressure which is imparted to the sides; together with the undulating motion of the springs by which the bedding is sustained, impart a sensation of entire comfort and ease. In the opinion of the faculty, this individual feature presents an effectual preventive of *sloughing* in the back, that dreadful and often fatal consequence of a long continuance in the recumbent posture. The invalid, however helpless he may be, may be placed in any required position, either for his own comfort, or for surgical operation; for example, the body can be raised to any degree; the lower limbs placed on a double inclined plane, a point essential in the reduction of fractures; the feet elevated to assist in replacing a dislocated knee-pan, &c. &c.

By this fortunate invention, the torture which many patients experience from being lifted out of bed, and exposed to the atmosphere while the bed is re-making, or other necessary changes effecting, will be utterly obviated, and the expensive attendance of assistants precluded. *One person* can, in the space of two minutes, and without trouble or exertion, *complete an entire change of bedding*—the bed under the patient, bolsters, pillows, &c. all may be swept upon the floor, and replaced by others, and this arrangement is made without inconvenience to the patient, nor is he in this, or any of the other changes, once touched or exposed to sight or cold.

The bedstead is also convertible into an *easy chair*, and can be restored to its horizontal without disturbing the patient or deranging the bed clothes; the bed-rest and pan are brought into use upon a new and most easy principle; the latter is closed by an air-tight, self-acting valve, and all its operations are conducted without the least noise or jarring from the machinery, which is entirely concealed when the bed is made up.

In concluding our brief, and we admit imperfect sketch of this inestimable invention, we may add, that "the revolving cylinder bedstead is an elegant structure, in the newest French style, with scroll back and canopy top, that it is not only applicable to cases of sickness, but available for ordinary use, imparting, from its peculiar construction, much greater comfort, with a mere mattress, than is derived from a bed of the softest down when laid upon a bedstead of the general description; in short, it fully justifies the patronage of the most eminent of the faculty, possessing every conceivable convenience, unimpaired by a single objection."

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PREFERMENTS, MARRIAGES, &c.

MARRIAGES.

At Ludlow, Henry Hodges, Esq. surgeon, to Miss Lloyd, only daughter of the late Henry Lloyd, Esq. all of Ludlow.—At Kin-fare, in the county of Stafford, Captain Arthur Lyttleton Mac Leod, to Mary, third daughter of the late W. Bradley, Esq. of Colbornehills, in the same county.—By the Rev. H. T. Streeten, Edmund C. Streeten, Esq. of Queen's College, Oxford, to Elizabeth daughter of the late John Warren Paget, Esq.—At Castle Froome, Thos. Jones, Esq. of Ledbury, to Miss Mary Ann Derry, eldest surviving daughter of Francis Bennett Derry, Esq. of the Birchend.—At St. James's Church, London, William Wilberforce Pearson, Esq. to Lady Angela Alexander, daughter of the Earl of Stirling.—At Holmer, Mr. Charles Anthony, proprietor of the *Hereford Times*, to Anne Deykes, only daughter of James Archibald, Esq. of Holmer Court, near Hereford.

BIRTHS.

At Broadwas Court, Worcestershire, the lady of Phipps Onslow, Esq. of a son.—The lady of Francis Valentine Lee, Esq. barrister-at-law, of a son.—At the Guildhall, Worcester, Mrs. W. S. P. Hughes, of a daughter.—At Stourbridge, the lady of Robert Scott, Esq. of a daughter.

DEATHS.

In Paris, in his 72nd year, Wm. T. Len-thall, Esq. of Besses Leigh, Berks, and late of Broadwell, Gloucester; he was fifth in

paternal decent from the Speaker, of the Long Parliament.—In Bath, in his 88th year, General Sir H. Johnson, Bart., Colonel of the 5th Foot.—In Berkeley-square, Lady Julia Hobhouse, wife of Sir John Hobhouse, and sister of the Marquis of Tweedale.—Aged four months, William Robert, only child of Wm. Acton, Esq. of Wolverton, Worcester-shire.—In the eighth year of her age, Eliza Ann, only daughter of Edward Morris, Esq. Worcester.—At Brighton, in her 83rd year, Lady Cornwall, relict of the late, and mother of the present, Sir George Cornwall, Bart. of Moccas Court, Herefordshire.—Of scarlet fever, John, the only child of John K. Booth, Esq. M. D. in the eleventh year of his age.—At Leamington, Mr. E. A. Jennings, surgeon.—At his house at Dudley, in his 75th year, deeply and deservedly lamented by his family and friends, James Bourne, Esq.—At Berlin, April 7, his Excellency the Minister of State, Baron W. Von Humboldt, at his country seat, Jagel, near Berlin, in the 68th year of his age, after a short and not painful illness. Not only the State but the sciences have suffered a severe loss in him. To the study of antiquity, and in particular of general philology, which last was his favourite pursuit, he devoted all the energies of his mind, and with indefatigable perseverance. He retained his faculties in their full vigour to the last.—Aged 74, Admiral Sir Robert Moorsom, K. C. B. of Cosgrove Priory, near Stoney Stratford, father of Captain Moorsom, R. N. of Edgbaston.

METEOROLOGICAL REPORT.

Mar.	Barometer.		Thermometer		Remarks.		
	Morn.	Even.	Max.	Min.	Day.	Night.	Wind.
1	28.657	29.355	39.5	31.5	Cloudy, st. snow & rain	Fine, frosty	S. W.
2	29.500	29.160	45	41	Cloudy, windy	Fine, windy	S.
3	29.106	29.360	45	35	Cldy, wind, lt. showers	Fine	N. W.
4	29.221	29.195	46.5	31	Cloudy, wind, and snow	Snow	S.
5	29.402	28.870	48	38	Cloudy	Wind and rain	N. light
6	28.795	28.829	47.5	37.5	Fine, cloudy, high wind	Rain	N. W.
7	28.215	28.930	44	32	Cloudy and windy	Fine, frost	W. high
8	29.205	28.805	45	37	Fine, cloudy	Clds, showers	W. light
9	28.560	28.474	47	32	Showers, rain, & snow	Sharp frost	S. & N. W.
10	28.836	28.935	45	39.5	Fine	Wind, showers	W.
11	28.800	29.110	49	39	Rain, mist on the hills	Fine	W.
12	29.115	29.315	43.5	36	Clouds and rain	Fine	Calm
13	29.548	29.486	48	40	Very fine, fresh breeze	Clouds, rain	W.
14	29.300	29.430	54	42	Fine	Rain	S. W.
15	29.300	29.500	47.5	39	Fine	Fine	W. N. W.
16	29.495	29.490	51.5	41	Fine	Clouds, rain	N. N. W.
17	29.216	29.270	50	38.5	Fine, rather cold	Fine	Calm, W.
18	29.440	29.593	47.5	35.5	Cloudy, hazy	Fine	N. E.
19	29.620	29.675	51	43	Fine, sun	Cloudy, fine	S. W.
20	29.695	29.695	57	46	Fine, cldy, mist on hill	Fine	S.
21	29.664	29.664	58	45	Fine, cloudy, showers	Fine	S. W. & E.
22	29.705	29.748	48	37	Fine, cloudy	Fine, cloudy	N. E.
23	29.706	29.700	45	36	Cloudy, dry	Fine, cloudy	N. E.
24	29.725	29.880	45	31.5	Cloudy, dry	Fine, frosty	N. E.
25	29.945	29.940	47	35	Fine, sun	Fine	N. N. E.
26	29.882	29.735	47	37	Fine, sun	Fine	N. E.
27	29.715		50.5	35	Fine, sun	Fine	Calm
28	29.615	29.508	43	32	Cloudy, fine	Fine	N. E.
29	29.480		47	34	Fine	Fine	S. E.
30	29.238	29.145	50	40	Cloudy, fine	Fine	S. E.
31	29.115	29.110	54	49.5	Clouds, mist, rain	Fine	S.
Mean Max.			48	37.6	mean Min.		

Malvern, April, 1835.

20 NOV. 1916



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THE
ANALYST;

A
MONTHLY JOURNAL OF SCIENCE,

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No. XI.



JUNE, 1835.


London:
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 *We have made arrangements for publishing Dr. Hastings's Lecture on the "Salt Springs of Worcestershire" (recently delivered before the Members of the Worcestershire Natural History Society) in our next Number, without curtailment. As the Lecture will far exceed the limits we usually allot to a single article of a scientific character, it is our intention to present our readers with at least SIXTEEN ADDITIONAL PAGES. The Lecture will be illustrated with a Lithographic Section, exhibiting the different Strata in boring for the Salt Springs at Stoke Prior.*

TO CORRESPONDENTS.

The continuation of "Lionel Lackland" is unavoidably deferred.

Our Correspondents, "Juvenis" and "Zilla," will, we trust, excuse us when we state that their poetical effusions require revision before they can be transferred to the pages of "The Analyst."

Publications received too late for review in our present number will be noticed next month.

It is requested that all communications sent to the Editor, may be POST-PAID; and Contributions should be sent *early* in the month *pre-ceeding* that in which they are expected to appear.

ON THE PROGRESSIVE DEVELOPMENT OF THE VEGETABLE ORGANIZATION.*

BY ROBERT J. N. STREETEN, M.D.

THE Linnæan axiom, "*Mineralia crescunt, Vegetabilia crescunt et vivunt, Animalia crescunt vivunt et sentiunt*," was intended to illustrate the difference existing in the objects of the three great divisions of Nature—the animal, the vegetable, and the mineral kingdoms, and may perhaps, for all ordinary purposes, serve to establish a sufficient distinction; but when we come to scrutinize more closely into Nature—when we proceed to investigate her as displayed in the more simple and elementary of her productions—in those productions which we are accustomed to consider as the lowest in the scale of being, and often to neglect as scarcely worthy of our regard, we shall find ample reason to doubt the correctness of the generalization. Many mineral substances, when crushed into fragments, afford minute globular particles, which, if thrown into water, and viewed under high magnifying powers, are seen to gyrate and revolve in a manner highly curious, and at the same time present an appearance and habitude, or mode of action, so entirely similar to some forms of animal or vegetable being under like circumstances, as to be altogether undistinguishable by any of the means of investigation which are at present under our command. That there is a difference between the ultimate molecules or atoms of mineral or inorganic matter and the simplest forms of animal and vegetable existence, we cannot doubt; but as we are incapable with the aid of the instruments which we at present possess of tracing out and examining these elementary bodies, either in the one case or the other, we must be content to take our departure in this investigation from that part of the scale of progressive development of which our means of research, aided by our reflecting powers, permit us to acquire a knowledge.

The ultimate particles or molecules of all mineral bodies have been conceived to be of a shape either perfectly spherical, or more or less inclining to a sphere, and these spheres or spheroids of most inconceivable minuteness, varying, however, in their size in bodies of a different nature, and probably also in their polarities or modes of attraction. In the simplest forms of vegetable or animal existence with which we are acquainted, the external configuration of the organic particle is the same as, or at least very similar to that conceived to belong to the mineral

* Being the substance of a Lecture delivered before the Members of the Worcestershire Natural History Society.

molecules, namely, spherical or spheroidal. But there is this essential difference. The phenomena of the mineral molecules are best explained upon the supposition that they are homogeneous, or of like nature throughout; whereas, as far as our researches go, the ultimate forms of organization are not homogeneous, but consist of a membranous or filmy envelope of extreme tenuity, inclosing within its cavity a transparent fluid, constituting, in fact, a close spheroidal cell or vesicle.

It is not necessary for our present purpose to attempt to define the difference between the simple monads of animal, and the simple vesicles of vegetable existence; and when it is stated that of the former five hundred millions have been crowded into the space of one cubic inch without apparently interfering with each other, and that of the latter still greater numbers have been observed to occupy the same space, it will be seen that the very minuteness of these bodies in itself opposes a barrier to our investigations, the bounds of which we cannot pass. The subject which more immediately demands our attention is the gradual development of the mysterious principle of life, as shown in the variations of organic structure throughout the scale of vegetable being, commencing with the most simple vesicle or germ of vegetable existence, and tracing the increasing development of the vegetable structure till we arrive at the most complex and elaborate of its forms.

The most simple form of vegetable existence, according to the views here expressed, of which we can form a conception, is a close cell or vesicle—a simple vesicle, consisting of a membranous film of extreme tenuity enveloping and inclosing within its central cavity some fluid, or perhaps aeriform matter. Such a vesicle may be observed in the granules of the *Lepraria viridis*, that green powdery incrustation which is found in such abundance on trees, old posts or rails, walls, &c. in damp shady situations. This green crust is in fact one of the most simple forms of vegetable being with which we are acquainted, and when examined with the aid of a powerful microscope, will be found to consist of innumerable small granules* of a spheroidal shape, very loosely connected together in fours.

It is not meant to be asserted that these granules, cells, or vesicles are perfectly simple—that they are the ultimate organic elements of the plant; for it is not at all probable that we should here have arrived at the real elementary composition. On the contrary, there is much reason to believe that the external filmy coating of these vesicles, though of such extreme tenuity, is itself compounded of numerous other cells—that it in fact consists of a congeries of vesicles of inconceivable minuteness so united together as to form a continuous surface; each of which secondary

* That these granules are vesicular is evident, for by touching them with the point of a fine needle, when viewed in water under the microscope, their filmy coats will be ruptured and will be observed to present irregular torn edges.

vesicles, as they may be termed, may possibly also be compounded in like manner, and so on to an extent which it is utterly beyond our powers to comprehend. To the limits of minute division in the works of the great Creator there appears no bound. Were it not that all parts of his creation clearly prove that magnitude and number present no restraint to his operations—that the vast and the minute are equally the object of his attention—we should often be tempted to throw aside many of the sublime truths of natural science as little better than the wild reveries of a heated imagination. But every department of scientific research leads to the same conclusions, overwhelming as they are to the powers of the human intellect, and every mode of investigation teaches the same results; and while we make the vain attempt to conceive the wonders of creation, we can only pause and admire when the faint glimmering perception, which alone we are able to obtain, arises in our minds.

But to proceed, without entering further into a question which is quite beyond our powers—this green powdery crust in its elementary composition—elementary, as it appears to our eyes, may represent what is to us the ultimate forms of vegetable organization. A simple vesicle connected in this instance with similar vesicles by a quaternary arrangement, in others, as in some of the *Confervæ* and various plants of the *Algæ* tribes, by a binary, ternary, or linear mode of arrangement.

When the connection between the organic particles is more close, the vesicles being as it were brought within the sphere of mutual attraction, we have them not merely in contact, but variously compounded—two together as in the granules of *Gracilaria erecta*—three together as in the ternate granules of *Rhodomela pinastroides*—or lastly, four or more as in the compound granules of *Microcladia glandulosa*.

If a number of these elementary vesicles be so arranged in simple contact as to take up the smallest possible space, a section of them will present the appearance of a series of circles, or if subjected to a certain degree of equable pressure, they will form a kind of network, pentagonal, hexagonal, or otherwise, according to the presence of various modifying circumstances.

In thus regarding the arrangement of the ultimate vesicles of the vegetable organization to form the cellular structure of plants, we must not confine our attention to the mere mechanical principles of juxta-position and pressure. Each organic vesicle, in a state of activity, is endowed, either in itself, or as appertaining to the vegetable structure of which it forms a part, with the principle of life. It may, therefore, increase in substance and expand in size; and from this gradual expansion or growth, certain changes in its development and in its apparent structure will necessarily take place. Thus, by the gradual expansion of a simple vesicle, it will attain to a larger size—its shape may

become elongated or depressed, according to the circumstances of pressure under which the expansion takes place—the outer filmy covering or envelope may increase in thickness, and the secondary vesicles of which this film consists become so far developed as to be sensible to our modes of investigation—and lastly, the organic molecule may acquire the property of reproduction, and by the formation of other vesicles from the inner surface of its filmy covering, or more probably by the development of the pre-existing particles of which this covering is composed, the vesicle which was either simple, or to our senses apparently so, becomes compound, having its central portion occupied with other and secondary vesicles. That these are not merely speculations has been fully established by the researches of M. Raspail upon the minute chemistry of organic products. In examining the granules or vesicles of fecula, a vegetable product of great importance, and of which the seeds and roots of many plants almost entirely consist, he observed that, subjected to a limited artificial heat, the membrane or filmy envelope constituting their external coating was capable of gradual extension, the granules increasing in size, and that at the same time globules were formed all over its surface, resembling new grains of fecula, attached by a hilum or minute scar to a membrane. “Analogy,” observes M. Raspail, “seems to point out before hand that, under the influence of the natural causes which affect vegetation, whose action though slow is durable, this development should possess a more regular character than under the influence of an artificial cause. What is thus indicated by analogy is proved by observation, in regard to the grains of fecula, which grow in the vegetable organs, till their forms and dimensions might render it difficult to recognize them. On the other hand, direct observation shows that, in consequence of this development, there are formed in the interior of each grain of fecula, new feculent globules, which being packed together, present a very perfect resemblance to the cellular texture. Each of these grains of fecula, when obtained separate, is furnished with a hilum, by which it was connected with the inside of the cell which contained it, just as a bean is connected by its hilum with the placental parietes of the large cell which we call the pod. But this bean is not merely stuck on to the surface of the pod; it has been developed by the progressive swelling of the inside, and has passed successively through every dimension from that of a microscopic globule to that which it possesses when ripe.”—“The secondary grains, whose presence we have detected in its interior (i. e. of the primary vesicle), acted on by the same causes, will be developed in their turn, and will in turn give rise to other tertiary grains, and so on indefinitely; so that we shall then have a more or less complicated cellular texture in the interior of a single cell. Now as these new cells are, at every period of their growth, attached to the

sides of the generating cell, we can conceive that each of them is nothing else than the development of one of the globules of which the coats of the cell are composed."*

It has been before observed that the development of the cells of plants is materially influenced by the varying circumstances of pressure under which it takes place. When the pressure is unequally distributed, being less in one direction and at the same time considerable in all others, the cells will be much modified in their shape. They will be compressed according to the direction in which the pressure is applied, and the active principle of growth continuing to be exerted chiefly in the direction of least pressure, a series of elongated cells will be formed, approaching more or less to the form of tubes. To this modification of cellular structure, M. Link has given the name of elongated tissue. Sometimes the elongated cells, instead of being cylindrical or prismatic in their shape, are fusiform or spindle-shaped, that is, narrower at the extremities than in the centre. These are the *clostres* of M. Dutrochet. The medullary rays or *striae* found in the stems of dicotyledonous plants are also elongated cells, but placed in a horizontal position, instead of a vertical one, which is the usual arrangement of the cellular texture.

Such is the elementary structure and development of the cellular tissue of plants; we have now to direct our attention to the various modifications of vessels constituting the vascular tissue. "Vessels," says M. Richard, "are layers of elementary cellular tissue, rolled up in such a way as to form canals, or cells, which are more or less elongated and placed end to end, and whose partitions have often disappeared."† This definition of vessels, though given by one of the latest and best authorities, is extremely vague and imperfect, and affords us little insight into the gradual or progressive development of this part of the vegetable organization. From what has been stated before respecting the modifications of the cellular configuration induced by pressure, it will appear upon consideration that there is a tendency, under certain circumstances of pressure, to a transition from the cell to the vessel or tube: the elongated cell, for instance, is in fact a short tube, closed at both ends, and it is precisely under the circumstances of pressure by which the elongated cell is produced that we find the vascular structure to be developed. The lateral pressure in vascular plants, arising from their external form, is very considerable; whereas the pressure in the cellular plants is for the most part much more equally distributed. It does not seem improbable, also, that the mode in which the cells are arranged together may exert some influence upon the development of the vascular structure. When arranged in close contact, there will

* Raspail. Elements of Organic Chemistry, translated by Henderson, p. 2.

† Richard's Elements of Botany, by Clinton. Ed. 4. p. 15.

be a greater tendency to form the hexagonal cellular tissue, but if placed in a linear arrangement, and subjected at the same time to lateral pressure, the cells will tend to become elongated, and not yielding laterally, the filmy envelopes will give way at their points of contact, and a communication be thus formed from one cell to another, constituting at length a continuous tube.

Let us now examine the several varieties of vessels with the view of ascertaining how far the opinions here advanced are in accordance with the more evident phenomena presented by the vegetable organization. At the points of union between the stem and the root, and the stem and the branches, are found vessels of a moniliform or beaded configuration. They are apparently jointed, and, according to some botanists, are traversed interiorly by transverse partitions. Their external coats, as well as their internal partitions, are formed of areolar cellular tissue; that is, of cellular tissue in which (probably from the secondary cells of which it is composed not approximating very closely) interstitial spaces are left. They, therefore, present the appearance of being perforated. The slightest inspection is sufficient to prove that these beaded vessels are nothing more than cells arranged in a linear series, and which, in consequence of the interstitial character of their coats, have become united together, so as to form an imperfect tube or vessel, the internal partitions remaining in some instances, and disappearing in others, according to the progress made in the development of the true vascular structure.

In the woody layers of the root, stem, and branches, vessels nearly allied to the preceding are found to occur. These are the punctuated vessels of some botanists, the porous vessels of M. Mirbel. They appear to be continuous tubes, having their sides perforated by pores, which are arranged in transverse lines around the tube. We may readily conceive the beaded or jointed vessel when subjected to considerable lateral pressure, such as must take place in the parts of the plant where these punctuated tubes are found losing the jointed appearance, and having its internal partitions removed. When the pores which are found in the sides of these vessels run into each other, forming apparent transverse slits, the tubes are called false spirals, to distinguish them from the true spiral vessels. The formation of these last, the true spirals, appears to be somewhat different from the preceding, and to arise from the development of the secondary vesicles constituting the envelope of what may be termed the primary cells. M. Raspail is of opinion that these secondary vesicles are so arranged in the filmy tissue of the envelope of the primary vesicle as to pass round the cell in a spiral direction, instead of in parallel rows or rings. Now if a cell of this description be gradually elongated, and increase in its progressive development according to the principles before laid down, a tube or vessel presenting precisely the characters of the spiral will result. The whole primary cell is developed and elongated

so as to form a cylindrical tube of greater or less extent, its central cavity constitutes the internal tubular cavity of the vessel, and the secondary vesicles of its envelope still retaining their spiral arrangement, form the spiral external coating of the vessel. The communication between several of these elongated cells or tubes may afterwards take place, so as to form a continuous vessel of considerable extent in the same manner as in the more simple vessels. These spiral vessels are very readily seen in the leaves of many plants. By carefully breaking a strongly nerved leaf, and gently drawing the parts asunder, the spiral vessels of the nerve will become visible, and the spiral texture may be unrolled to a considerable extent without breaking.

These several kinds of vessels pass into each other, forming the mixed vessels of Mirbel; the same vessel being in one part of its extent porous, in another transversely slit, and in a third spiral. The explanation of this modification of vascular development appears to be that cells and tubes formed under varying circumstances of pressure or other modifying causes, and consequently differing in the arrangement of the particles of which they consist, have become united together so as to form a continuous vessel.

There are two other kinds of vessels which require to be noticed. These are simple tubes and the proper vessels. The proper vessels of plants are short tubes without pores, and are found in the bark, leaves, and flowers. They contain the peculiar secretions of the plants in which they are found, as the yellow acrid juice of the Celandine *Cheledonium majus*, the opaque milky juice of the poppies, &c. They are, therefore, elongated cells, appropriated as reservoirs for the proper juices furnished by the individual plants. The simple tubes are vessels which are without pores, and appropriated to the circulation of the sap, and hence called sap-vessels. They do not differ in their mode of development from other vessels, but in consequence of the secondary cells of their coats being more closely compacted, no interstitial spaces or pores are visible in their sides.

In the more simple and elementary forms under which plants present themselves to our notice, the cellular texture alone is found to occur. These plants, the *Cellulares*, or Cellular plants of De Candolle, constitute one of the primary divisions of the vegetable kingdom. They differ greatly, both in their internal structure and external configuration, in the several organs and parts of which the vegetable frame consists—in their roots, stems, branches, leaves, and parts of fructification, not only from plants of a higher order, but also among themselves. There is little apparent analogy between the rose which delights us with its fragrance, and the noisome *fungus*, Nature's scavenger—between the sturdy oak, and the crust which attaches itself to the surface of the solid rock, either as a whole or in any of their parts; and yet the transition from one of these extremes to the other, through

the varied tribes of this part of Nature's wide domain, is so gradual, and the relation by which many of these tribes are connected together, so intimate, that the difficulty which botanists experience in the arrangement of the objects of their studies frequently consists more in the separation of allied plants and families than in their union with each other into groups.

The structure of the powdery lichen, to which allusion has already been made, and of its allied species, is most simple, consisting of vesicles only, and those scarcely connected together. Other forms of the vast tribe of lichens—those humble individuals of the vegetable race which form the first of Nature's coverings—which act, as it were, the part of pioneers, and though of small repute, and to the unobservant eye insignificant, are the very instruments which it has pleased the Almighty Creator and Ruler of all to employ as the secondary agents of his power in breaking down the surface of the hard and barren rock, and rendering many a wild and uncultivated region fit for the nourishment of larger tribes of plants, and ultimately adapted to the support of the higher orders of animals, yes, even of man himself.—Other forms of this vast, and shall we not say important family of plants, are found, in which these primary vesicles are closely compacted into crusts or films,—crusts of extreme tenuity, but covering the surface of stones and rocks, and the bark of trees. Such are the curious *Lecidea geographica*, so called from its resemblance to a chart or map; the *Graphis elegans*, and *Opegrapha scripta*, a species of mimic writing, &c. The transition from these filmy expansions to the foliaceous lichens, such as the common yellow wall lichen, *Parmelia parietina*, and its allies, by the splitting up, as it were, of the crust in different directions from the surface to which it is attached into scales or lamina of various thickness, as in *Squamaria*, and others of the scaly lichens, is well marked; and again from these through the *Cetraria Islandicus*, or Iceland moss, and others in which these scaly and leafy crusts are gradually lengthened into thongs, to the fibrous or filamentous lichens on the one hand, and into some of the tribe of *Algæ* or sea weeds on the other.

The same gradual development of the cellular structure may be traced in the *Algæ*, a family of plants, the greater number of which are inhabitants of the ocean. This we have already had occasion to observe in their fructification from the simple vesicles of *Porphyra* and *Ulva*, to the variously compounded granules of *Gracilaria*, *Rhodomela*, and *Microcladia*, changes accompanied by corresponding variations in the structure and configuration of the entire plants.

The transition from the *Algæ* to the mosses, in which the external form approaches still more to those vegetable tribes where the cells, becoming gradually more elongated, approach more or less to the tubular structure, is well marked by some of the *Hepatici*, or liverworts. Of these last, the frond or leafy

expansion of the *Riccia natans* affords a beautiful example of the cellular structure, and its general appearance comes very near to some of the *Algæ*, while, on the other hand, many of the *Jungermanniæ*, another genus of the liverworts, are almost as closely allied to the mosses.

The mosses are universal favourites, and it is impossible, even for the most superficial observer, to have glanced over any of these beautiful plants, without admiring the general elegance of their forms, and the extreme delicacy of their leaves and other parts. The most finished drawing can convey but a faint and imperfect idea of their extreme beauty. We must here have recourse to the microscope for ourselves, and when thus examined, so as to display their internal structure,—the modifications of cellular texture as seen in their transparent leaves,—the varied forms and delicacy of these parts,—the curious structure of the filmy teeth which encircle the mouth of their capsules, the interest which attaches to these productions is increased ten-fold, and the reflecting mind is lost in the contemplation of the infinitely varied beauties of form and structure which proceed from the Master hand, and which prevail in every department of nature. In the works of the great Creator, there is nothing imperfect—nothing unfinished—whether in simplicity of design, or in the most delicate and refined construction. As far as our limited powers will enable us to comprehend it, the same sublime unity of purpose is displayed throughout. We look above us and contemplate the vastness of the heavenly expanse,—its brilliant orbs preserving their prescribed limits, and rolling through space in perpetual harmony, and with never-varying regularity,—and we feel lost in the vastness of the power and wisdom of that Divine Intelligence which has called them into being, and which presides over, directs, and regulates the whole. We are ready to exclaim with the Psalmist, “What is man, that thou art mindful of him? and the son of man, that thou visitest him?” But shall we, therefore, infer, with the disciples of a false philosophy, that He regards not the beings whom he has called into existence? that He, having breathed into them the breath of life, there leaves them, and casts them aside as utterly beneath his attention and care? Let us turn to the humble moss which groweth upon the wall, and to the insect flutterer which reveleth its short hour in the setting beams of a summer’s sun. We behold the same attention bestowed upon these minute existences,—the same care in the adaptation of the circumstances under which they are placed to the purposes which they are destined to fulfil. Can we then doubt that even the hairs of our heads are all numbered, and that he who so clothed the grass of the field will fulfil all his purposes of love towards that being who, though fallen indeed, and in himself powerless of good, is yet gifted with faculties by which he can investigate, and in a measure comprehend, the mighty works even of the High and

Lofty One, who sitteth upon the circle of the Heavens and inhabiteth Eternity.

The various species of the fern tribe, those leafy expansions, some of while rival even the mosses in elegance of form and delicacy of structure, while others vie with the loftiest denizens of the tropical forests, are among those forms of vegetation, in the internal texture of which tubes or vessels, as well as cells, are found to exist. They constitute, as it were, the transition link between the cellular and vascular plants, being allied to the latter in internal structure, while in external configuration, and more especially in their fructification, they are intimately connected with the former. In that covering of herbage, the verdure and freshness of which gives such a charm to the rich scenery of the valleys and plains of our native country, we find many different species of plants. These are called *gramina* or grasses, and resemble each other very closely in their general structure and appearance, constituting one of the most natural groups with which we are acquainted. They have for the most part fibrous roots, a tubular jointed stem, narrow ribbed leaves, and an elongated spike or panicle of flowers, in all which parts, whether root, stem, leaves, or flowers, we find the cellular structure to be combined with the vascular,—vessels or tubes traversing in a longitudinal direction the general cellular texture of the plant. The same combination of vascular and cellular structure is found in the sedges and rushes—in the numerous species of iris—in the lilies—the *Orchideæ*, and others, constituting the first division of the flowering plants. To trace the connections between the several families of the *Vasculares*, or to examine the gradations by which they insensibly pass into each other, is not necessary for our present purpose, since in these more complex and highly organized forms of vegetation there is a unity of structure prevailing, with certain modifications, throughout the whole. It will be sufficient if we examine the several parts or organs of which these plants consist separately and in detail, pointing out as we proceed the modifications in the development of these several parts as they occur in plants of a higher or lower degree of organization.

The more important divisions of the vegetable organization, as it exists in the more highly developed families of plants, are the root—the stem and branches—the leaves—the flowers—the fruit, including the seed—and lastly, bulbs and buds.

The external characters of the root vary considerably. In grasses, as we have just observed, it is generally fibrous, sometimes creeping, rarely bulbous; whereas, in many others of the monocotyledonous plants, the tulip for instance, it is bulbous. In every true root, however, a fibrous portion will be found to exist, and it is the ultimate fibrils or divisions of the fibrous part of the root, with the minute vesicular bodies at their extremities, which constitute the essential part of this organ. It is by

these little vesicular terminations of the fibrils of the roots that plants obtain their nourishment from the soil in which they grow. They are found equally in the lofty forest tree and the herb which grows beneath its shade, and are equally necessary to the existence of both; for if by accident or design the fibrils are materially injured, the plant withers and dies. In their internal structure, roots, with some exceptions, will be found to resemble the stem; in fact, in many instances, they consist of a main descending trunk, branches, and twigs, the organization of which is precisely conformable to the ascending stem and its divisions, as it is found above ground.

The stem or trunk varies much in different families of plants. In those among the acotyledonous plants in which it occurs it consists of a thin *epidermis* or cuticle, surrounding a pulpy matter, the texture of both which parts is almost entirely cellular; a few fibres or vessels are, however, found in the stem of the fern tribe, forming an exception to the general internal organization of this division of the vegetable kingdom. In the monocotyledonous plants, the stem consists also of a cuticular envelope and internal cellular substance, but the cuticular portion is more dense and firm, and the cellular texture of the internal part of the stem is traversed by longitudinal fibres or vessels, several of which are arranged together in bundles. In the dicotyledons, the stem is composed of bark, wood, and pith. The bark, which corresponds to the cuticular part of the stems of the acotyledonous and monocotyledonous plants, is formed of several layers of cellular and fibrous texture; the wood or fibrous portion of cellular texture, and closely compacted vessels traversing the cells in a longitudinal direction, and symmetrically arranged so as to form concentric and divergent layers; and the pith, which occupies the central portion of the stem, of a light spongy cellular tissue.

The development of this apparently intricate organization from the simple elements of cell and vessel, according to the principles already laid down, may be conceived to take place in the following manner. Let us suppose a complete circular range of secondary vesicles becoming dilated by the process of growth in the interior of a primary or generating cell. It is evident that the envelope of this cell, pressed at all points of the circumference by similar parts which are growing at once in length and breadth, will take the form of a cylinder; but it is also evident that the secondary vesicles will be more compressed towards the centre than at the circumference, and that, consequently, a transverse section will exhibit each of these secondary cells under the form of a wedge. If the eight vesicles grow in a longitudinal direction, without giving rise to other vesicles within them, we shall then have an organization similar to that of the long stalk which supports the flower of the *Nymphæa alba*, or white water lily, a monocotyledonous plant. Each of these vesicles will form an empty canal, of

which a longitudinal section will present a three-sided prism, and which will extend from the base to the summit of the flower-stalk. But if within each secondary cell a certain number of tertiary vesicles be developed, so as to form cells of considerable size and nearly empty, we shall then have the structure of the central part of certain trunks of the monocotyledons, and also that of the pith, as it occurs in the stems of some of the dicotyledons. Now if, instead of vesicles thus developed, parallel and concentric cells are formed, we shall have a commencement of concentric layers, and other vesicles being developed in their interstitial spaces in a longitudinal direction, so as to form tubes or vessels, a transverse section will exhibit the perfect development of the concentric vascular tissue. If the cells, instead of loose hexagonal cells, give rise to other vesicles pressed one against another, and developed on the coats of more internal cells which are incased in and line completely the cavity of those in which they are formed, then we shall have the most complicated organization of the stem of a dicotyledonous plant, with its incased and concentric layers, and its medullary rays, or divergent layers, which are nothing else than the interstices of the secondary cells, or rather the junctions of their sides, in which vesicles have been developed in a horizontal direction, forming tubes or vessels running from the centre of the stem towards the circumference.*

Branches are nothing more than the divisions of the stem, and may be conceived to be formed by the progressive development of cells and tubes in a manner altogether similar,—a generating vesicle gradually developing other vesicles upon its internal membrane, and the growth taking place as in the former instance.

Leaves consist of a cuticle or transparent film of cellular texture, enclosing a parenchyma or pulp, also of cellular tissue, and usually of a green colour, and fibres of which the nerves and veins of the leaf are chiefly composed. These fibres communicate with each other, and are ramifications from the central nerve or midrib. In the monocotyledonous plants, the nerves are for the most part parallel, or nearly so, extending from the leaf-stalk to the apex of the leaf in a longitudinal direction, and rarely branched, but communicating with each other by short transverse ribs, which gives the appearance of a tessellated or rectangular network to the vascular structure. In the acotyledons, the leaves or leafy expansions are destitute of ribs or veins, and consist merely of a pulpy cellular tissue, enveloped by a cuticular expansion. The development of these parts from the simple vesicle or cell may be thus supposed to arise. Upon the internal surface of the envelope of a primary cell, two secondary vesicles may follow the growth of the generating or primary cell, and stretch out longitudinally; they will thus form two lateral lobes

* Raspail. Elements of Organic Chemistry, by Henderson, p. — (?)

whose interstice will be the median nerve. If other vesicles be developed within these two cells, and become in their turn large tertiary cells, their interstices will form the lateral nerves, and will seem to derive their origin from the median nerve. Other vesicles may, in the same way, be developed into cells in each of the tertiary cells, and others again within these, and so on indefinitely; and a primary microscopic vesicle will be thus transformed almost before our eyes into the leaf of a dicotyledonous plant. At the same time that this development of the cellular texture of the leaf is going on, a vascular connexion with the sap-vessels of the branchlet to which it is attached may be formed through the medium of the hilum or point of attachment of the primary cell, and with this again throughout the leaf, by the hila of the secondary, tertiary and succeeding orders of cells, the interstitial spaces which form the nerves becoming vascular, in consequence of the development of elongated cells or tubes through these points of attachment.

The structure of the floral coverings, that is of the calyx and corolla, is analogous to that of the leaves; consisting of a cuticular expansion, soft and pulpy cellular texture, and fibres or vessels running in a longitudinal direction and ramifying so as to form a kind of network, and differing from the structure of the leaves chiefly in the delicacy of its several parts. But the variety and elegance of their external forms, and the beauty of their colours, are such as to excite our deepest admiration.

“ Not a flower

But shews some touch in freckle, streak, or stain,
Of his unrivalled pencil. He inspires
Their balmy odours, and imparts their hues,
And bathes their eyes with nectar, and includes,
In grains as countless as the sea-side sands,
The forms with which he sprinkles all the earth.”

The stamens and pistils, or those parts which are more immediately concerned in the process of fructification, and for the preservation and due elaboration of which the more conspicuous parts of the flower are destined, consist apparently of cellular texture only.

The most important part of the fruit is the seed. This organ consists, at least in the flowering plants, of an embryo, or the rudiments of the future plant, and various envelopes, generally two, sometimes three or four. The essential parts of the embryo are the *plumula* or young plantlet—the radicle or future root—and the cotyledons or seed lobes, destined for the nourishment of the other portions in the first stages of their growth. Another important part of the seed, though not discernible in all plants, is the albumen,—that which forms the principal part of the seed in the *Cereales* and grasses, and which, in one of this tribe, the *Triticum hybernium*, or wheat, is of such vast and incalculable importance to the welfare of the whole human race. The

primary divisions of the vegetable kingdom are characterized by these peculiarities in the structure of the embryo. The distribution of plants, however, according to this arrangement, is very unequal. Of about 44,000 species known to exist, 38,000 are flowering plants, of which number 32,000 are dicotyledonous, and only 6000 monocotyledons. The remaining 6000 are cellular plants, and destitute of cotyledons, the structure of their seeds being, indeed, from the extreme minuteness of their organs, very little known, and probably altogether different from that of the seeds of vascular plants. They are perhaps more analogous to bulbs than to perfectly formed seeds.

A bulb consists of an internal firm pulpy substance, surrounded by a filmy envelope or cuticle, and coated with several layers of a loose fibrous expansion. In the centre of the pulpy substance will be found the future plant, which may frequently be observed fully developed in all its parts before there is any appearance of external vegetation. "If the bulb of the tulip is taken up in the beginning of the month of January, and carefully bisected in a line passing through its longitudinal axis, the petals, the stamens, the pistil, and the incipient stem may be already all distinctly perceived, small and delicate in their appearance, but complete in all their parts."*

Buds contain the rudiments of leaves and flowers. They consist of a scaly envelope, inclosing the proper bud, which is a pulpy substance, with numerous interlaced fibres, and surrounded by a thin cuticle. "In the month of March, 1810," observes Mr. Keith, "I opened up a bud of the horse chesnut that had not yet burst its scales. The scales, which were about fifteen or sixteen in number, being removed, were found to contain one pair of opposite leaves, now laid bare, the divisions of which were closely matted together with a fine down. The leaves upon being opened were found to inclose a flower-spike, consisting of not less than a hundred florets compactly crowded together, and each enveloped by its own downy calyx, which when opened discovered the corolla, stamens, and pistil distinct, the rudiments of the future fruit being also discernible in the ovary."†

This singularly curious fact affords a striking illustration of the general correctness of the principles attempted to be established in the preceding observations. But these remarks have already extended to too great a length, and to enlarge further upon the subject would exceed our allotted limits. Enough has, however, been brought forward to shew the nature of these curious investigations, and should any of the readers of "The Analyst" be induced, by the deep interest which attaches to it, to pursue the inquiry, these pages will not have been written in vain.

* Keith, in Brewster's Journal, August, 1834, p. 114.

† Ibid, p. 115.

To the Editor of the Analyst.

SIR,—In the prospectus of your periodical, I find an invitation to supply your miscellany with such local or statistical information as may instruct or amuse your readers. Hitherto your invitation has been overlooked, yet so important do I consider the information you solicit, that I must beg a page or two whilst I endeavour to second your views in considering a subject inferior to none in that interest which can engage attention, and employ the faculties of the inquirer through the varied walks of intelligence.

The human mind never stagnates, but is always busily employed in matters of research, it dreads vacuity, and is ever active in pursuit, and, if not engaged in the higher flights of fancy, or the more sober walk of conviction, it seeks a gratification in the unhallowed and reckless influence of a distempered imagination.

Knowledge is necessary to man, and whether it be that which tends to moral instruction and useful attainment, or whether it be that which leads to immoral consequences, and vitiates and degrades the natural energies, is a matter highly important to every relation in life.

Knowledge is the medium through which man can be raised in the scale of created beings, and its essence and character justify his progression, for should it not tend to the purposes of social life, and be profitless in its moral influences, it may be gazed at for its splendor, but rejected for its inutility.

Knowledge, says Lord Bacon, is power, and, he might have added, virtue also; for, through its instrumentality, the affections of the heart and mind are engaged, and lead through a progressive expansion to the consummation of all instruction, religious influences, and moral order. I need not trace its progress, for its steps are perceptible from the lowest grade of ignorance and sensuality to those of wisdom and benevolence, and we find our illustration in those nations and people who have preserved the sameness of nature through successive generations, exemplifying the admitted axiom, that vice and ignorance preserve a close and intimate alliance, and in those who, through the advancement of knowledge, have displayed the fruits of wisdom in the principles of virtue and moral truth.

If these prefatory remarks shall meet with approval, the line of duty is plainly laid before us, through the exercise of those powers with which God has endowed us, to instruct, enlighten, and improve, to the best of our ability in the sphere of life in which we move.—Relative are our duties, and relative their exercise, and although few can attain the higher walks of know-

ledge, yet all men of ordinary intellect and education may succeed, to a considerable extent, as their time, their talents, and their opportunity shall allow; and although they may contemplate the acquisition of others as beyond their reach, although they may behold, with dismay, the giants of literature and of science, yet let them not, in an evil hour, throw away the means they possess, nor feel because they cannot attain the highest intelligence, that they are incapable of instructing or amusing their fellow men through such channels as their industry and locality shall allow.

There is no class to whom this admonition applies so forcibly as the resident clergy, whose education, whose attainments, and whose time afford a facility of communicating information beyond that which the leisure of others, however well qualified, will allow—moreover the locality of the clergy is most favourable in affording that particular information which it is the wish and the intention of the writer strongly to recommend and enforce; and if he shall be so fortunate as to impress others with the same conviction of its utility, its interest, and its importance, both as regards science and amusement, which he entertains, he must feel highly gratified with the result, in learning, through the pages of the “Analyst,” the statistical relation of those parishes where that periodical is so generally read, and for whose immediate use it is especially intended.

To accomplish this desirable object, the higher branches of science are by no means necessary, nor need it require other aids than an active perception and the ordinary powers of describing what falls within the limits of almost daily observation. That I may be as intelligible as the nature of my subject will allow, I shall beg leave to give a few heads under which might be ranged the objects of inquiry:—

Topography and Natural History, as name of parish boundaries, rivers, mountains, minerals, soil, birds, insects, &c.

General History, as to eminent men, battles, or other events.

Antiquities, as to buildings, fortifications, or ought else of local interest.

Population, industry, and means of employment.

Agriculture, &c.

Parochial economy, management of the poor, parish registers, education, and diseases.

Miscellany, climate or other matter not included in the above heads.

Now it appears to me, Sir, that ordinary research and ordinary science are ample for such elucidation of the statistics of each parish, and that a very interesting whole might be produced by these means, somewhat in the manner of an able and entertaining work now in progress “The new statistical account of Scotland,” and which I recommend to the attention of your readers,

It may be asked what are the advantages which would result from local knowledge upon subjects generally treated in county histories? To this may be answered that they are compressed and succinct, and do not adopt a wide spreading view of the matters embraced in statistical information, which treats upon subjects wholly omitted, or slightly touched upon by the more general historian.

It may further be asked what is the end to be answered by this local development, and how will it confer a general benefit? To which may be replied, in various and many ways—To the agriculturist it is no small object of inquiry what the nature of soil, its general produce, the influences of seasons, and the description of cattle which depasture the land—To the manufacturer what the staple produce, its character, its means of transmission and its effect upon population, both moral and physical—To the curious, what the boundaries, the rivers, the lakes, the seats, and parks, and pleasure grounds, population or other objects of attention incidental to each parish—To the geologist, what the general nature of stratification, the particular construction of hills, their fossil remains and the mineral qualities—To the antiquarian, what the historical records of each parish, what the remains of years long since past, the ruins, the mounds, the encampments of our hardy ancestors—To the naturalist, what the plants, the birds, their migration, their return, and their natural habits, what the insects, reptiles, &c.—To the literary man, what may be accounted of the illustrious dead and the eminent men of old, and the philanthropist may find much matter for inquiry and interest in the character of the people, the nature and objects of their pursuits, of their relative position in society, and the moral and intellectual progress they have made and continue to make.—These are some of the results to be forwarded by statistical information, and to these may be added much that is interesting to a numerous class of persons who employ their leisure in visiting scenes of foreign interest. With this view they travel far and wide over the classic countries of Greece and Italy, in search of the memorabilia of ages long since past, and contemplate their remains associated with the important events which victory has handed down—distance in time and place awake the sympathies and excite the admiration; this is natural and I quarrel not with nature, yet if I cannot advance the latter inducement, I can point to the former, and whilst I admit the merit of such scenic reminiscences which justly merit the enthusiastic admiration of the traveller, I must be allowed to ask, are there no monuments within our own country which claim similar attention? I leave this consideration to the tastes of the opulent, and direct myself particularly to those who feel the importance of gratifying the many whose opportunities forbid extensive inquiry—of promoting the best sensibilities of nature by directing the attention to objects of general interest—

and of exciting a sentiment of kindly feelings through those relative considerations which unite man with man in the general bond of sympathy and regard.—Need I add, Mr. Editor, that our duties are imperative and limited alone by capacity and occasion.—It little matters to the individual what the nature and extent of that sphere, if its end is utility,—to some it is extensive, to others bounded, yet all are called to the exercise of their means as the source of public esteem, and, what is of more consequence, of personal satisfaction.

I remain, Sir,
Your obedient Servant,
J. G.

ADIEU.

CAN'ST thou, my dear Eliza, tell
The word (perchance oft heard by you)
That binds the soul with magic spell—
It is the fatal word adieu.

Adieu, adieu, oft hast thou rung
Thy deadly knell unto my ears ;
Full oft upon my brow hast hung
Thy mighty weight—too great for tears.

'Tis Nature heaves the long drawn sigh,
The offspring of an aching heart ;
'Tis Nature dims the sorrowing eye
When friends are doom'd, alas ! to part.

And he may brook the battle's roar,
May smile to ride the mountain wave,
Unmov'd may view the rocky shore,
And sink undaunted to his grave,

Who cannot brook the ardent press
The clasping hand delights to share ;
Who dares not break the fond caress,
But sinks unnerv'd, and lingers there.

Oh ! who can mark the beaming eye ;
Haply to him the light of day
Can then the parting pang defy,
Just gaze, and coldly turn away.

Though Pride forbids the streaming cheek,
E'en checks the rising of the sigh,
The throbbing heart must ever speak
In sorrow's saddest melody.

J. P.

REMARKS ON VERNACULAR AND SCIENTIFIC ORNITHOLOGICAL NOMENCLATURE.

I WAS glad to see in the last number (p. 238) the subject of ornithological nomenclature treated of on sound principles, and with a view to consistency in that hitherto much neglected department. Writers on ornithology—even those of deserved scientific repute—adopt names which they themselves own to be erroneous, giving as their excuse that they are generally used! To make this the more evident, I will give a few instances. Selby, in his excellent “British Ornithology,”* places the white-tailed ossifrage (*Ossifraga albicilla*, mihi) in a different genus from the golden eagle, (*Aquila aurea*, Willughby,) and yet he calls it eagle, both in vernacular and scientific nomenclature. The white-headed osprey (*Pandion leucocephalus*, mihi,) is also called *Haliaeetus*, or sea eagle, although not in the genus *Aquila*. The *Falco rufipes* of Bechstein, although left in the genus falcon, has most unaccountably a separate generic name allotted to it; it is called red-legged hobby. The honey pern, although removed from the buzzards, (*Buteo*) is yet called a buzzard. There are three British species in the genus *hirundo*, (swallow,) and yet Selby calls only one of them a swallow. But worse than all, he continues that prejudicial, mischief-working name, goat-sucker and *Capri-mulgus*. How an author of such generally sound views could have adopted such an inexcusable name as this, we are utterly at a loss to account for, unless indeed, it be from thoughtlessness. “There is,” as Wilson well remarks, “something worse than absurd in continuing to brand a whole family of birds with a knavish name, after they are universally known to be innocent of the charge.”—*American Ornithology*. The names “owl” (*Strix*.) “hawk” (*Accipiter*.) and “swallow” (*Hirundo*.) which have also been bestowed on this genus, are obviously erroneous, so that the name proposed by Bewick seems to be the least objectionable. Indeed, nightjar is very descriptive of a habit of the bird. Mudie, in his charming “Feathered Tribes,” objects to it, but he does not state his grounds. It is warmly defended in the mangled second edition of Montagu. *Vociferator* (proposed page 239) is likewise an excellent name; but I do not like *Vociferator Europeus*, N. Wood, for it is not the only European species. I therefore propose to name the species the fern nightjar, (*Vociferator melolontha*.) In naming animals, in my opinion, four kinds of specific appellations should be avoided; 1st, naming from size, such as great snipe, (*Scolopax major*.) little grebe, (*Podiceps minor*;) 2nd, naming from the commonness of the species, for instance, common wren (*Anorthura communis*.) common grosbeak, (*Coccothraustes vulgaris*;) 3rd, taking the specific distinction from the country in which the bird is found, such as Bohemian waxwing,

* Two vols. 8vo., 2d. edition, 1833, Longman & Co.

(*Bombycilla Bohemica*.) European dipper, (*Cinclus Europeanus*;) and, 4th, naming after individuals, such as *Richard's* pipit, (*Anthus Richardi*.) *Bullock's* petrel, (*Procellaria Bullockii*.) &c. &c. The objections to all these modes of naming are too obvious to need pointing out here. In a future paper I may enlarge more on this subject, but I shall now give a few more comments on Selby's nomenclature. We left off at the fern nightjar, (*Vociferator Europeanus*, N. Wood;) (*V. melolontha*, mihi.) To the *Lanius excubitor*, of Linnæus, (*L. cinereus*, Willughby,) he gives two specific names, "great," and "cinereous," which should never be done. And to the *L. rufus* he gives the generic name, chat—a name which belongs to a very different genus, (*Rubetra*, Blyth.) One of the thrushes he calls song thrush, (*Turdus musicus*.) but as the whole genus is so musical, it seems invidious to call one of them by that name; I therefore propose garden thrush, (*Turdus hortensis*, mihi.) The *Merula vulgaris*, Ray, and *M. torquata*, Will., I would put into another genus, calling one the yellow-billed ouzel, and the other the ring ouzel. The robin redbreast he calls *Erythaca rubecula*; but I should prefer taking Willughby's generic term *Rubecula*, and Blyth's specific one; thus it would be called *Rubecula familiaris*,* Blyth. The sedge reedling (*Salicaria phragmitis*, Selby,) he calls sedge warbler, and the marsh reedling, (*S. arundinacea*, Selby,) he calls reed wren, thus giving different generic names (and both, by the way, wrong,) to the same genus. To the fauvets (*Ficedula*, Blyth,) he gives three generic names. The *Melizophilus provincialis* he calls Dartford warbler, although the bird has very small resemblance to the genus sylvia. I should call it the whinbrake red-eye. Two of the warblers he calls wrens, but he might as well have called them larks at once, for they have as little resemblance to *Anorthura* as to *Alauda*. The *Regulus auricapillus* he calls gold-crested regulus, but I think it would be better to translate the term, and to call the bird gold-crested kinglet. The American species, the (*Regulus carbunculus* of Buonaparte,) (*Regulus Cuvierii*, of Audubon,) might be named the carbuncle kinglet. Another American species, (*Regulus tricolor*, of Nuttall,) might be named the tricolored kinglet. I first proposed the name kinglet, in "London's Magazine of Natural History," for February, 1835, (vol. viii., p. 110.) Selby most unaccountably leaves the *Calamophilus biarmicus*, Leach, in the genus tit, (*Parus*.) I would call it the bearded pinnoc. Neither should the *Accentor alpinus*, of Bechstein, be left in the genus dunnoc, (*Accentor*;) I would call it the Alpine stare, (*Curruca alpina*.) By some ornithologists it is called a starling, (*Sturnus*.) but this is incorrect. For the pied wagtail, I have formerly proposed *Motacilla maculosa*. The *Anthus Richardi*

* This name was proposed by Mr. Blyth in vol. I of the Field Nat. Mag. Long before I had ever seen that work, I had given the name myself, and meant to have proposed it soon to the scientific world, when I found that I had happily been forestalled by that intelligent writer. I, however, entirely disagree with him in thinking that the redstarts (*Ruticilla*, Will.) ought to be in the same genus as the redbreasts (*Rubecula*, Will.)

of Vieillot, should be removed to a separate genus ; it might be named the tawny lavroc, (*Corydalla fusca*, mihi.) I would call the waxwing the hawthorn waxwing, (*Bombycilla cratægus*.) I would likewise call the *Coccothraustes vulgaris*, of Willughby, the haw grosbeak, (*C. cratægus*, Blyth.) The pine grosbeak, of old authors, might be called pine thickbill, (*Densirostra enucleator*, mihi ;) and the bulfinch, the hedge coalhood, *Pyrhula modularis*, mihi. The *Passer troglodytes*, of Willughby, I would call the ivy wren, (*Anorthura troglodytes*, mihi.) We have three pigeons (*Columba*,) the ring, (*Palumbus*) the rock, (*Livia*,) and the wood, (*Arborea* ;) and one dove, the turtle dove, (*Peristera turtur*, Boje.) However, my limits forbid my enlarging, for the present, and indeed I should most likely never have troubled you with my communication at all, had it not been for the anxious wishes of some friends, who, like myself, are greatly solicitous about the ornithological science, and also my having names to propose, fearing that if I did not take some means of speedily making them public, I should soon find myself in the unpleasant dilemma of that excellent entomologist Mr. Westwood : see " Taylor's Philosophical Magazine."

May 5, 1835.

N. F.

TO C * * * * Y.

FORGOTTEN ! thou shalt be forgotten when

The bloodless miser thirsts for gold no more ;
And on the star-lit deep, sea-weary'd men
No longer pine to greet the peaceful shore.

When summer skies no more, propitious, bring
Bloom to the rose, and blossom to the tree,
Sunshine to flow'rs, soft music to the spring,
And songs to birds—*thou shalt forgotten be !*

Forgotten ! thou—oh ! thou forgotten ! yea
When her wan babe the anguish'd mother spurns ;
When stormy clouds for ever veil the day,
And, wildly, back the foaming torrent turns :

When pain and grief are fled, when sighs are rare,
And burning tears, ah ! never more are shed ;
When hope fails not, nor joy dissolves in air,
And love—*true love*—laments the silent dead.

When light—sweet light—forsakes these faithful eyes
That dwell—for ever fondly dwell on thee,
When from this breast mine anxious spirit flies,
Then, idoliz'd ! shalt thou forgotten be !

Yea ! yea ! forgotten as a vanish'd dream
That flees as shadow from the sleeper's brain—
A lamp—a star—gone out ! a bury'd theme !
A joy—a hope that ne'er shall wake again !

EDWARD.

May, 1835.

PAUL LANDER ;

A FACT—THIRTY YEARS SINCE.

"Truth is strange,
Stranger than Fiction."

LORD BYRON.

SITUATED in an embowered dell, in one of those quiet villages, far remote from the noise and tumult of the crowded city, stood a small cottage ; an *English* cottage. Around it, Nature revelled in the wild exuberance of her own fertility ; the entwining branches and tendrils of the thick copse wood shadowed the purling rivulet, murmuring round the sedgy banks, with the bright-eyed bells, narcissus, and lily, gazing and bowing over the images of their own loveliness ; while the sun-beam, peeping through the loving boughs, glittered on its silvery bubbles. There the gay songsters rung forth their varied notes ; the fields dressed themselves in their bridal attire, diffusing over the panting bosom of the air a thousand sweets, when laughter-loving light awoke the voluptuous earth, pregnant with life ;—there the breathing solitude of nature was undisturbed, save when the village church bell sent forth its melancholy voice, like the adieu of departing hours ; or in the fragrant night, when Philomel carolled to the whispers of true love. In such a fairy scene stood the cottage of Luke Lander ; its appearance at once bespoke the charm of quietude and peaceful enjoyment ; there was a voice of innocence in its very walls, festooned with the graceful jasmine, and the fragrant honeysuckle, while the citizen bees, through "the long summer day," murmured round its Hyblean stores, and gathered in their sweets.

Luke Lander was a contented man ; he possessed enough, and he was satisfied. Luke was a *happy* man, as far as the enjoyment of the heart's affections can advance happiness. He loved his wife, a plain, kind, notable woman, but he loved his two boys still more ; he enjoyed the fruits of his labour with thanksgiving and humility of heart ; he trusted in the goodness of his Maker, and let not the fears of *probable* evils disturb the enjoyment of positive good.

For many years did Luke and his loving wife enjoy uninterrupted repose in their quiet abode ; they saw the tender buds burst into blossom, and the young branches put forth their leaves in the flowery smiles of many a spring ; they had sown and gathered in the fruits of summer after summer ; had watched the yellowing days of autumn, and the husky leaves, rich in a thousand tints, tremble and fall, while the odour of Nature's dying breath came from them ; they had shut out the cold winds and icy breath of many winters, when they could purchase out of their sufficiency the poor man's benison. Through each succeeding year their children had grown in strength and spirit, and reflected new and higher-toned joy into their unscathed hearts.

Luke's two sons were strikingly different in their characters.

The younger was all life and animal activity, a fine, tall, healthy youth; his happiness was in the full tide of action; he neither feared nor thought; his excessive elasticity of spirit placed him almost above the touch of sorrow, though in his heart was the echo of humanity and love. The elder,—Paul,—was, from his early years, a milder, more sedate, and thinking child. He would pore for hours over his school books, and seldom was it that the village pedagogue had to complain of his idleness. Early in the morning the brothers would start away from the dell, "satchel on back;" but no sooner was the coppice behind them, than away dashed the impatient Ned, over hedge and ditch, in the full cry of bounding spirits, and lucky was the Dominie if the scape-grace stood before him that day. There was no reclaiming Edward Lander; the Dominie was tired of talking and punishing. Paul witnessed his pranks, and sometimes laughed at them, but there his partnership ended. He was always the student. Withdrawing from his noisy brother, he would retire to some secluded spot, and hour after hour would he devote to his favourite books. The passion grew with his years; he neglected even that part of his duty which he owed to his father, and with unappeasable ardour sought after knowledge. By the assistance of a friend, Paul had procured some scientific works from the town of * * * *, and thus alone, and unassisted by tuition, he acquired the most profound intimacy with science.

Ann Gadsdill, the fair daughter of a villager, had ever been beloved by the peasant student, and who, in the guilelessness of her innocent heart, would shower upon him the fond expressions of her passion. They had grown up in mutual attachment, as two fair flowers on the same green bank, and whose fragrance is wafted to each other. Sometimes, as they walked fondly together, the lovely girl would toss her long light ringlets from her brow; with her round arm half circling his neck, she would gaze on him with her dilated sparkling eye, and then laugh in open joyousness at the strange unaccountable things which Paul had been sounding in her attentive ear. But still she would listen and believe, or she would believe without listening—Paul was to her the oracle of truth; but while the pale-faced boy wandered on with her, ever in thought, she would wake him with a kiss. She believed all he said, and though her test of truth was not the most infallible, it was to her the first and best—love was *her* theme, her heart his worshipper.

The sun rising in the clear effulgence of his light is often prophetic of the darkness which, yet hid in the western cave of night, soon spreads in dusky wreaths over the blue sparkling heaven; change seems essential to the vitality of nature. Nor is the happiness of man less precarious, and if change appear not necessary for our good, at least it is *certain* and unavoidable. Riches make to themselves wings and fly away, and the hopes and enjoyments of the present day, may be exchanged on the morrow for sorrow and despair.

After nearly twenty years of unbroken peace and prosperity, Luke's sun became dimmed, and misfortunes first darkened around him. Many causes, acting together, produced the melancholy change in his affairs; "Sorrows come not singly, but in battalions;"—disappointment followed disappointment, but the villany of a friend consummated his ruin.—Luke had yielded to his earnest solicitation to become bound with him for a considerable amount. His friend left the country, and the whole responsibility devolved on the unfortunate Luke Lander. These troubles, together with the singular conduct of his eldest son, Paul, his own declining age, and the hundred fears which a first trouble engenders, completely paralysed his energies. He would sit for hours, his eye fixed, and his thoughts abstracted, unconscious of the presence of his wife or sons; while the heavy sigh, the sudden starting tear, and the convulsive throb, told the deep agony of his soul. Poor Luke—in his old age, God seemed about to forsake him; he would weep, but he could not pray—there was in his heart a rebellion against prayer. His sinking wife would stand and gaze at him with unutterable woe, and as she gently laid her hand upon his shoulder, he would start, like one awaking from out of a troubled dream, gaze hurriedly on her for a moment—when she would softly whisper, "Luke, Luke, your wife is with you yet." His breath would flutter round his heart—she would take his hand and mingle her tears with his, and as they had joyed, so they now sorrowed and wept together. His younger son would talk to him—blame him for despairing—would speak to him of hope, and that he was strong, and would labour to maintain them both; and as the boy talked, his eye would glisten, and his hand close with energy, and his look grow bright. Paul spoke not, but the tear came, and he went out to weep.

Amid all these afflicting scenes and distressing anticipations, the student was ever at his books—night and day; the morning sun and the evening star beamed upon his pale, haggard cheek, the eye still bent over the pages upon which he worked; leaf after leaf was thrown aside, marked with strange mysterious figures. Still and ever the youth wrote on. A fortnight previous to the bond becoming payable, to which Luke's name was attached, full of fear and misery the wretched man had arisen from his sleepless bed; the outer door was unbolted, unlocked, scarcely on the latch; surprised and full of fears, he walked quickly to his son's room; Edward was sleeping. The student was gone; his papers, too, were no longer strewn over the room; not a leaf was visible—trembling with fear, Luke awoke the sleeping youth—his brother was at the table, silent and writing, when he fell asleep; of his departure he was perfectly ignorant. All day, and he returned not—the night drew on; his wretched father and brother had sought him in his old secluded spots—later, and later, and still he came not; the beams of that bright star, that the night before seemed to smile upon his labours, now glanced far into the dark room with unbroken ray. The copse woods, the wide fields,

echoed with his name—he came not. Distracted with fear and alarm, the wretched Luke refused to be comforted; with all his son's peculiarities and neglect of duty, there was about him a mysterious charm, which made him dear to his father. Why, he knew not, but he felt proud of his pale-faced boy. The night had nearly elapsed, the faint streaks of day were darting round the horizon, the poor family sat in mute despair.—Hark!—'tis a voice, a loud voice at the cottage door—again—ah, ah, ah, my boy, my child, Paul; Luke staggered to the door, he clasped his lost son to his heart—"Now I care not;" he looked earnestly in his pale and sickly face, ardently, fondly did he look, put his dark hair aside from his high cold brow; and his light-hearted brother took his hand, and his mother gazed on him, and they wept, and those tears were like the sun-light shower—they were of joy; but the student wept not, moved not, spoke not—still he seemed to look beyond them all.—My son—Paul—Paul—and as they gazed on him he gently put aside their hands—"Father, I am tired, I wish to sleep, my head is strangely confused, my eyes are dim, sleep will refresh me."

It was about a week after his son's absence when Luke received a letter containing an intimation that unless the bond, then due, was discharged in three days, his person and property would be seized, to satisfy the claim. What could he do? no friends, no hope, no prospect of escape from ruin, and worse than death—imprisonment; to be immured within the close, dark cell of a goal, for no crime, no guilt, no shame; to be the mate of the most abandoned, to go down to the grave with the seal of dishonour upon his heart—"Oh God! I am a poor old man; take me ere I go mad with horror." He looked around his home, his once neat happy home; his wife, his drooping, now despairing wife, his sons—Luke could not weep—he gazed from one to the other, "Wife, sons, speak, or are you all dead, sure you have not left me all alone?" They wept; "Weep on, weep on, I cannot weep, my eyes are dry and burning, but I cannot shed one tear." On the evening of the second day, they were assembled in the little room, taking a last farewell of all around them; the fire unlit, the room disorderly and unclean. There sat, in mute despair, the wretched Luke, his poor wife seeming about to bid farewell to all her sorrows—pale, haggard, and abstracted; the student looked listlessly on the flowered lattice, he scarcely breathed; sometimes he inclined his head, and seemed to listen, 'twas nothing—the wind—the falling leaf. Edward, the gay, spirited Edward, how changed; his broad breast heaved with the dreadful throes of his agonized heart. But how shall I paint such misery; who can paint the agonies of the soul? "Ah, they come," exclaimed Luke, "they come; hide me—wife—boys"—and the old man sunk, powerless, on the ground. The noise of a carriage was heard in the distance, rolling rapidly along. "Yes, they come," said Paul, "they come." Suddenly the carriage stopped—a little time elapsed, when two persons were observed passing slowly on to Luke's cottage. A

quick knock was struck on the door; springing to the window, Edward demanded, in a hoarse, impetuous voice, the nature of their business. "Does Luke Lander reside here?" "Ah!" replied Edward, "come you here to take us like birds in a snare? we know you—this is Luke Lander's—what then?" He could scarcely articulate. The persons seemed to pause a moment, when one of them, stepping in front of the window, said to Edward, with subdued tone, "The person who addresses you is a friend." "A friend," echoed the youth, as if suspecting the truth of the communication. Before he could recover himself, Paul stepped to the door, and, unbolting it, stood before them; his pale sunken cheeks, shadowed by his thick clustering hair, thrown boldly off from his broad white forehead, looking still more pale in the partial twilight; he stood calmly before the inquisitors. "Sir," said the gentleman, evidently moved by the appearance and manner of Paul, "I seek Paul, the son of Luke Lander, nor need he fear to give his hand to Sir James Westbery." The stranger bowed low as he spoke. "Sir, I am the man, I am Paul Lander." "No, no," screamed the distracted Luke, rushing past his son, and glaring on the stranger with a frenzied eye—"I am Luke Lander, yes, I am the poor old bankrupt; do you hear me?" The gentleman started back, but suspecting the nature of the scene, he passed quietly into the cottage, his servant remaining at the door. Poor Luke staggered after, and stood in dreadful anticipation. The stranger took his son's hand, "You are Paul Lander?" "I am." "You are the author and writer of ————, directed to me on such a date?" "I am," muttered Paul. "Sir, I rejoice to know you—to offer you my hand and support; the more so, as my presence, if I may judge from the distressing appearance of your family, will bring joy, and gladness, and honour, to the house of mourning." "Joy! joy!" muttered Luke, scarcely comprehending the meaning of what was said, "who talks of joy?" "Father, father, peace," said Edward, holding him back. "Yes Sir, of joy," said the stranger, turning to the trembling Luke. "In your son, Sir, behold one of the first men of the age." Paul sunk, gasping, on a chair. "It having been signified by the committee of the Lords Commissioners of the Admiralty, that your discoveries and inductions will produce the happiest results to his Majesty's Navy, I, Sir James Westbery, am commissioned to present you with two hundred pounds, and the same to be settled as an annuity for life." "Two hundred pounds! Good Sir, God bless you, Sir, trifle with me not, I am a poor broken-hearted, ruined man; I am quite ready; the poor boy meant well." Then, as if recovering a short glimpse of hope, "Joy, joy, two hundred pounds!" The stranger took his hand, and without saying a word filled it with gold. Luke gazed on the money, then at the stranger, at his sons, his wife, his quiet home—"Ah, ah, Paul, son, joy, joy, wife." The stranger caught him as he fell, overpowered by his feelings. The truth became positive. The poor redeemed family wept blissful tears, in the extacy of their hearts. There sat the

pale, haggard, Paul, the large beads of sweat stood on his cold, pale brow—he wept not—moved not.—Hush—a low step was heard at the door, a female figure glided shadow-like across the room. She looked not around—she spoke not—kneeling down by the side of the insensible Paul, she took his powerless hand, she pressed it to her lips. He looked upon her upturned tearful eye, that fair and beautiful face, shaded with her unbound streaming hair—but a moment, and he clasped her to his bosom, and his tears were the incense of love and joy.

Again the sweet birds awakened the happy Luke to his morning duties, the spring blossomed, and the summer ripened her fruits for him—the murmuring bees wantoned in their flower-bells, and gladness rested on the quiet dell. But a word of Paul—he “won golden opinions from all sorts of men,” and gave an immortality to a name, which wealth and birth could never have secured.

TO THE READER,

To believe that the brightness of the morning shall continue through the day, is the happiness of youth, whose feelings and sensibilities would sink into the indifference of age, but for the illusions of hope.

He who journeys on in fair weather, without preparing for the storm, may be sacrificed to its fury—he only is wise, who, by anticipating evil can mitigate its penalty; who is neither too confident of happiness, nor without hope in affliction.

MORELL.—Vossins told Paul Colomies the following story of Frederic Morell, that great scholar and eminent printer in Paris. Whilst Morell was employed on his edition of Libanius, one day he was told that his wife was suddenly taken ill; “I have only two or three sentences to translate, and then I will come to look at her.” A second message informed him that she was dying. “I have only two words to write, and I will be there as soon as you,” replied Morell. At length he was told his wife was dead, “I am sorry for it; indeed, she was a very honest woman.”

Da Vinci advises an artist to inflame his imagination with picturesque ideas, by looking on an old dirty stained wall, where he will find many a fine landscape. Gainsborough frequently formed a landscape on his table, with the fragments of stones and herbs for trees, and a piece of looking-glass for his water. Another artist designed his rocks after lumps of charcoal, which he broke into fragments of picturesque rudeness. The Rev. Jas. Griffith, a gentleman of Oxford, practised a method of burning portraits in wood. There is a portrait of Sir P. Sidney in the picture-gallery there; and in University College a copy of Carlo Dolce's *Salvator Mundi*, burnt in wood. Why may not we anticipate striking likenesses by the smoke of a candle upon our ceilings, if the floors may be so decorated by a red-hot poker!

SOME REMARKS ON A REVIEW OF A PAPER ON
PHRENOLOGY, BY DR. MILLIGAN.*

I HAVE only lately received the earlier numbers of "The Analyst," consequently my remarks on this paper come rather late; I could not, however, allow them to pass wholly unnoticed, although neither these nor any other objections that have been brought against Phrenology, ever have had, or ever will have, any influence in retarding the science.† The review of the paper of the late Dr. Milligan (by a writer who signs himself C. R.) commences with the following observation:—"Upon the present occasion we shall confine our remarks to the Phrenological [or rather anti-phrenological] paper from the pen of the late Dr. Milligan. In selecting this essay, we are perfectly aware that we run considerable risk of disturbing the repose and arousing the ire of that very sensitive race—those exquisite specimens of the *irritable genus*, the Phrenologists," &c. This assertion is totally unfounded, and all who know any thing at all of the Phrenologists, are well aware that there are no persons more unwilling to enter into disputes than they are, and that even when they do, none are more calm and temperate. Witness, for example, the controversies of Dr. Spurzheim, or of Mr. Combe, and Sir William Hamilton. These were carried on—on the part of the Phrenologists—in a calm, and at the same time, masterly manner. The ire of the Phrenologists is not so easily roused as C. R. supposes, and such a paper as his would certainly not tend to arouse their indignation.

In another part of the paper, Dr. Milligan, as quoted by C. R. says that the inner table of the skull is *adapted* to the configuration of the brain. This is perfectly true, but he should have gone further, and have stated that *the outward form of the skull is regulated by the development of the brain*. This has long been satisfactorily proved, and the following instance, amongst many others that might be adduced, is a remarkable proof of it:—When I last visited Deville, he informed me that some years ago Mr. C—— had had a cast of his head taken, which Deville kept. The latter remarked to Mr. C—— that his organ of *Order* was somewhat deficient, and advised him to study harmony, in order to develope more fully this important organ. He did so, and on having his cast taken again, a few years afterwards, the desideratum was found to be completely supplied,

* Vide "Analyst," No. 1, p. 29.

† Antiphrenologists carp at the discovery of the immortal Gall being called a *science*; a science, however, it is, and the noblest of sciences, inasmuch as its end is the improvement of man.

and the organ to have increased materially in size. The manifestations of course coincided. Mr. Deville keeps these two casts in his collection, and shows them as remarkable instances of the increase of an organ after the individual had attained the age of forty.

The writer of the article under consideration proceeds to observe, that "the point in dispute between Dr. Milligan and the Phrenologist is the relationship existing between the outer table and subjacent diploe on the one hand, with the inner or vitreous table, as it is termed, in the passage just quoted, on the other." Now this "point in dispute" is a question which does not at all concern the Phrenologist, but the anatomist and the physician; the Phrenologist must determine the fact—which has been done long ago—that the outward form of the skull is regulated by the conformation of the encephalon,* and draw his inferences from the fact. The reason why it is so, is quite another department, and that he is not able to explain the reason of it does not in the least disprove the truth of his argument. I will proceed to quote further:—"A genuine specimen of the Phrenological tribe exhibits so much versatility in argument,—such an extraordinary facility in changing the grounds of his position upon all occasions in which THE SCIENCE seems to be in danger, that we really hesitate to place our index upon any one opinion as a certain and indubitable tenet of the sect." As to Phrenologists displaying such wonderful "versatility in argument," I do not at all wish to deny it, this being, in my opinion, by no means discreditable; but when C. R. proceeds to make the groundless assertion that a true Phrenologist displays "such an extraordinary facility in changing the grounds of his position upon all occasions in which *the science* seems to be in danger," &c. I openly challenge him to prove the truth of this in any one instance. To proceed. "Now it is here that Dr. Milligan meets the Phrenologist, by shewing that the causes which act in the development of the external table, and consequently of its irregularities of surface, are alike independent of the brain, and of the inner table of the skull, &c." Now it is evident that if the brain *has* no connection with the inner and outer tables of the skull, it must be the skull itself that regulates the operations of the mind. Whether or not this is the case with C. R. I cannot determine, but certainly with the *generality* of mortals, the inner table of the skull *has* connection with the brain. In another part Dr. Milligan speaks of 'the organs marked' on the skull 'at their pleasure, by writers on Phrenology.' The fallacy of this has so long been satisfactorily proved, that I consider it quite unnecessary for me to say anything about it in this place, but merely refer those who are of

* Encephalon; from *en* in, and *κεφαλη* the head: a scientific term for the brain; used by some for the cerebrum only.

the same opinion to the works of Gall, Spurzheim, and Combe, and to the "Phrenological Journal." I will, however, just remark that one of the organs (Alimentiveness) was discovered by two individuals nearly at the same time, without either of them having any knowledge of the good fortune of the other. Dr. Milligan continues as follows:—"Considered in relation to the brain, the membranes, the inner table, and the diploe itself, the outer table presents no other definite organization beyond that of an irregular envelope, which is in some places as thin as a wafer, in others thicker than all the rest of the cranium. But, if we view it from without, we find that every particle of its surface is adapted to some purpose which it has to answer in combination with the soft parts with which it is in contact. Many processes are levers for the muscles: others are merely scabrous surfaces for their insertion; others are condyles for joints; others organs of hearing; others organs of fixation; others of protection; and all this in direct reference to the organs in contact, but without the least relation, that can be discovered, to the encephalon. Hence we are forced to conclude that its projections solely originate under the influence, and for the completion of functions that are all external to the cranium; and the same thing must necessarily be inferred of the external table, which is merely their substratum." This *apparently* plausible *theory* might probably induce many persons to believe it, as seems to have been the case with C. R. Let us, however, examine into its truth. If the worthy doctor really supposed that the outer table of the skull presented "no other definite organization beyond that of an irregular envelope," he can only be pitied for the deficiency of his organ of individuality (observation); but, when he proceeds to state that "from without, we find that every particle of its surface is adapted to some purpose which it has to answer in combination with the soft parts with which it is in contact," &c. the question immediately presents itself why the external conformation of the head should vary so greatly in different individuals? and why these modifications of structure should invariably indicate certain manifestations? If this be the case—as no one who has impartially investigated the subject can deny—Dr. Milligan's theory falls to the ground.

C. R. remarks, in conclusion, that "The conciseness of Dr. Milligan's observations renders abridgment almost impossible, while the closeness of his reasonings, and the indubitable facts upon which they are founded [all of which "indubitable facts" I would undertake to refute], are certainly calculated to make a very strong impression against the doctrines which he opposes." Dr. Milligan certainly did show some ability in his essay, more especially because, although on the wrong side of the question, his theories had some plausibility. My *bump of gullibility* (as an antiphrenologist might say) is not, however, sufficiently large to allow me to be imposed upon by arguments like these,

as I am well aware that every objection that either Dr. Milligan or any other person has opposed or can oppose to this science, is easily refuted even by the merest tyro in phrenology.

Leaving this paper of C. R. let us glance at the following notice of the first number of the "Analyst," in the "Brighton Herald":—"The paper of Dr. Milligan on phrenology is very interesting, and we shall be curious to know what answer the phrenologists will give; for it seems calculated to make sad havoc in their *science*." If the editor of the "Brighton Herald" finds the paper of Dr. Milligan so interesting, I would advise him to turn over the leaves of that excellent periodical the "Phrenological Journal," if he has not already done so, for there he will find papers against Phrenology, as *interesting* as this of Dr. Milligan; and will also find them ably refuted. The editor of the "Brighton Herald" says, "He shall be curious to know what answer the phrenologists will give." His curiosity is now satisfied, if it has not been before, by an humble but ardent follower of the science, whose sole aim in giving this paper to the world is that those readers of the "Analyst," who do not see the "Phrenological Journal," or the works of Gall, Spurzheim, and Combe, may not be led away by this article of C. R. I will remark in conclusion, in order that the feelings of your correspondent may not be wounded by this refutation of his "indubitable facts," that a desire to point out his misconception of the meaning of the phrenologists, alone induced me to address this communication to your readers.

NEVILLE WOOD.

Foston Hall, Derbyshire, May, 1835.

To the Editor of the Analyst.

SIR,

In your last No. is a paper on the "Nomenclature of Birds," by Mr. Neville Wood, on which I am desirous of offering a few remarks. I think Mr. W.'s plan of altering many of the English names of our common birds, objectionable, because they more properly form part of our vernacular tongue than of the language of Science. They are consecrated by usage as much as any other part of the English language, and consequently when we speak of an hedge *sparrow* we are much more likely to be understood than if we called it an hedge *dunnoek*, though I willingly admit that it is *unscientific* to give the same generic name to an *Accentor* and a *Passer*. But the truth is, that the science of ornithology does not suffer by this incorrect application of English names, because those

familiar appellations have no real or necessary connection with science. The first and most important requisite in scientific terms is that they should be universally adopted, and hence the fathers of natural history have wisely employed the Latin language as the source of their nomenclature, being generally understood by the learned among all civilized nations. English names are useful only to denote those natural objects which are so common or remarkable in our own country as to attract the attention even of the vulgar, but as the science of natural history does not in the least require their assistance, I should be sorry to see them in any degree substituted for those Latin appellations which are universally current in the republic of science. I may remark that French naturalists are much more addicted to the adoption of vernacular names to the exclusion of scientific ones, than the English. By endeavouring to coin a French term for every natural object, in addition to the Latin one which it already possesses, they exactly double the enormous labour of bearing in memory the innumerable terms with which science is unavoidably encumbered.

If, then, I am correct in regarding the English names of Birds as belonging not to science, but to our mother tongue, it is clearly better to let them remain as they are than by endeavouring to reform the English language, to make changes which are certain not to be universally adopted.

The second requisite in scientific nomenclature is, that when once established, it should remain unaltered. Hence I cannot but regard as erroneous the prevailing notion that improved names may be at any time substituted for those which, though already established, are less appropriate. In naming a new genus or species, for the first time, it is of course desirable to give it the most appropriate appellation that can be found, but when a name has once become current, it is no longer the sense but the sound that recalls the idea of the object to our minds, and it is therefore of more importance that a name should be universally adopted, than that its meaning should be exclusively applicable to the object it denotes. To insure this universality in the use of terms, the only rule is to recur to the name originally given by the founder of the genus or species, which name I think no modern innovator has any more right to alter than he has to improve upon the name bestowed on a child by its godfathers. For these reasons I must still continue to prefer the term *Motacilla alba* to either *M. litor* or *M. maculosa*, and to call the goatsucker *Caprimulgus*, instead of either *Nyctichelidon* or *Vociferator*. I will now conclude these hasty remarks by referring Mr. Wood to "Loudon's Magazine of Natural History," for January last, p. 36, where he will find the same subject treated of more at large.

I remain, &c,

H. E. S.

BIRMINGHAM

SCHOOL OF MEDICINE AND SURGERY.

ON the necessity of such an institution to the students of Medicine in every town of consequence, few persons will deny. All students cannot go to London or Edinburgh, at least for any length of time, and in consequence the best part of their life is usually wasted in some small town, perhaps most convenient for their residence, in the attempt to gain a knowledge of the science to which they may be devoted. New institutions are springing up in every town of importance in the kingdom, but we hear of no Schools of Medicine and Surgery. In Birmingham, however, the medical profession, with a public spiritedness most worthy of them, contributed a fund, and obtaining the assistance, which was afforded very liberally, of most of the nobility and leading characters of the county, they succeeded in their object, and there is now a School of Medicine and Surgery in that intellectual town, which is almost equal to the celebrated institutions of the kind in the metropolis. At the opening of these extensive rooms, Dr. John Johnstone, Fellow of the Royal Society, and of the Royal College of Physicians, London, delivered an address, which was remarkable for its perspicuity and elegance. The following extracts from this address will doubtless prove highly interesting:—

“In tracing the history of this School, the work is in so narrow a compass that I need not detain you long in the detail. From small beginnings under our own eye has the Medical and Chirurgical School advanced to its present height. We have witnessed its birth, we have watched its growth, all about it is clear and ascertained, and some among you have the greater reason to be proud, because, in contemplating it, you contemplate the work of your own hands and your own minds. To Mr. Sands Cox is due, not only the formation of the School, but the idea in which it originated. After a liberal education in his own country, he visited Paris in 1824 for the express purpose of preparing himself for delivering lectures in anatomy and surgery. In October, 1825, he first submitted his plans to the Profession in Birmingham, and delivered his inaugural lecture. In 1826 and 1827, for the purpose of obtaining information, he visited the schools of Edinburgh, Glasgow, and Dublin, still continued to recommend the formation of a regular school in Birmingham; and, by that impulse which zeal and talent are sure to impart, in 1828 he gained the patronage of some of the seniors of the Profession in Birmingham, and the School was constituted.”

“Up to 1829, the School had only the convenience of one room for all its purposes. In consequence of this narrowness of accommodation, the Lecturer in Anatomy offered to build a set of rooms, provided the body of lecturers would guarantee a certain rental, for the reception of

the Museum and Library; and in order to learn how to arrange the Anatomical Museum in the best form, our enterprising and unwearied founder undertook to visit various collections in France, Germany, and Italy. On his return, the means of founding a Museum and Library appeared so scanty, that it was determined, in 1830, to solicit the aid of the neighbouring patrons of science to extend the plans and the usefulness of the Institution. This aid was liberally granted, and the donations of our benefactors, to the amount of £900, were expended in the purchase of preparations, expensive books of plates, and the fitting up of the Museum and Library. The institution now assumed its present form and feature, and the different offices were filled up as they at present stand."

In mentioning the names of those benefactors who liberally extended their patronage to the establishment when it stood so greatly in need of it, the learned physician alluded in pointed terms to the Earls of Dartmouth and Bradford, to the Barons of Birmingham of the house of Dudley, to the present noble Baron, Lord Ward, to the late Earl Spencer, and to Lord Lyttelton. Of Lord Lyttelton, he observed, that "his Lordship had always been the munificent patron of the arts and sciences of that town, and his illustrious father-in-law, the late Earl Spencer, has repeated to you, from his own mouth, in your own School, his generous wishes for your welfare: but this is not all—by his influence with the Government, the duties on anatomical preparations, brought to your Museum from foreign parts, have been remitted, he has added to your funds, and he has made a precious addition to your library. To our enlightened and independent representative, Sir Eardley Wilmot, we owe the never to be forgotten boon of patronage given early, when patronage is most efficient; as well as the stimulus offered to the exertions of our pupils by the presentation of a gold medal. To Sir Charles Throckmorton we are likewise indebted for early patronage, and also for the riches he has poured into our Museum. It is our boast to have received this proof of patronage from one of the chiefs of our county in ancient family and large possessions—from a gentleman and a scholar, who enrolled his name, in early life, in our profession, and who now, from the claims of oldest standing, is the father of it. Of your benefactors by donation, the name of Mr. Woods, of Coleshill, will be always prominent in your Museum and Library, from his ample present of books and fossils; as that also of Mr. Freer Proud, of Wolverhampton; and there are many other names which might be added to whose bounty we are indebted—many present and many absent, who, I trust, will not think us ungrateful or unmindful because the allotted time does not admit of further enumeration. But I hope to be forgiven if, in departing from this rule, I allude to one other name, which I should fail indeed in justice were I to omit, although it is the name of a brother. The merits of Dr. Edward Johnstone to this School can never be forgotten by those who know the zeal and

sincerity with which his patronage of it has been carried on from the beginning; and although it may be urged both to him and to myself that our obligations to medicine and to science are not inconsiderable, yet I trust that the efforts we have both made for their advancement in this instance, are an earnest that we shall not desert in our grey hairs that cause which we have cherished from our youth." He then proceeds:—"Thus then here, in the centre of a vast population, you have a School of Medical Science, a Museum of Natural History in all its branches, and of Anatomical Preparations, and a scientific Library, already fitted for their important purposes. Your ingenuous youth may be here imbued with all the necessary elementary instruction for the practice of medicine and surgery; and suffering humanity may be comforted by the reflection that it need not look up to you in vain. On that primary education on which a scientific education can be alone securely founded, I shall not detain you by enlarging. On a recent public occasion I ventured to declare, that mere lectures on science are barren without it—that unless a store of good sense is formed out of the materials of general and common information, and a certain portion of polite literature, and by founding all on the adamant basis of moral and religious principle, the rest of education is a bubble."

In conclusion, the learned physician thus addressed the students:—

"While the subject is warm in my mind, let me address this parting sentiment. You well know what a bright ornament classical learning is, how much it decorates the character, purifies the style, and tends to create accuracy of idea, and elevation of sentiment. It is on these accounts, as well as of the number of medical books written in the learned languages, and also on account of the usage of writing prescriptions in Latin, that your superiors have made a certain proficiency in this knowledge part of your examination for admission to practice. It is not then as a mere embellishment that classical literature is recommended to you; for destitute of dignity and barren of utility is every acquirement which has not for its end and aim the *real* information of your understandings. It is to render your minds better receptacles of science that primary education is necessary—it is to expand your views, and substantiate and fix your principles, that classical learning, as a part of moral discipline, is so available; and, in fine, it is the union of all these which, by correcting and enlarging the heart, makes you the fit companions and the best comforters of sickness and of sorrow—bringing your professional acquirements to bear, wheresoever they are needed, a blessing to humanity."

While on the subject of this admirable Institution, we cannot omit alluding to an Introductory Lecture, on the Study of Anatomy and Physiology, by William Sands Cox, Esq. the Lecturer on Anatomy and Surgery.

The investigation of that exquisitely wonderful and beautiful structure, the human frame, could not have been more appro-

privately chosen as the foundation of a lecture on this interesting occasion, and Mr. Cox, in his mode of elucidating it, was particularly felicitous. He detailed the characters which distinguish organic and inorganic matter, and then traced nature, rising by gradual and gentle transition from link to link, until her arrival at that grand, wonderful, and comprehensive system—man. After a minute investigation of the properties of anatomy and physiology, which the learned lecturer made most clear and convincing, he came to that part of his discourse which related to “that sentient and intellectual power—the *mind*,” from which we have made the following brief extract:—

“That this noble endowment proceeds from merely material organization has been contended by some of the most celebrated philosophers and poets, and publicly advocated by some distinguished members of our profession. But the opinions which have been advanced by the modern materialists have no claim to originality. The novelties which have been introduced are chiefly novelties in expression, not in ideas. The leading arguments are the same as were advanced during past ages. If we refer to the works of Democritus and the poet Lucretius, we shall find that the *anima* and *animus* were considered parts of the body, and when disorganized they returned to mingle with their primary elements—

Primum animum dico, mentem quam sæpe vocamus
In quo concilium vitæ regimenque locatum est,
Esse hominis partem, nihilo minus ac manus et pes,
Atque oculi partes animantis totius extant.

(Lucretius de rerum naturâ.)

To enter on this subject on the present occasion would be a digression. I will only observe that I am perfectly convinced that the mind is incorporeal and immaterial; which belief is strengthened and confirmed by the wisest and best of men of past ages. How beautiful is this expressed by the divine poet Virgil—

Principio cælum, ac terras camposque liquentes
Lucentemque globum lunæ, Titaniaque astra
Spiritus intus alit, totamque infusa per artus,
Mens agitat molem, et magno se corpore miscet.

This belief is confirmed by that of the most illustrious men of other countries—by the greatest men of our own. Surely we may rely with implicit confidence, if other evidence were wanting, on the opinions of Bacon, of Milton, of Newton, and of Locke—all of whom were perfectly convinced, after the most mature examination, that, exclusive of this material frame, there is superadded to it an incorruptible and immortal soul. How this combination of matter and spirit takes place can be only known to the omnipotent Creator of all things; but, to prosecute this inquiry further would be, in the words of one of our most beautiful poets—

To lose ourselves in Him, light ineffable:
Come then, expressive silence, muse his praise!

(Thomson's Hymn.)

The seat of this intellectual power is supposed to be the *brain*. The brain and spinal marrow communicate with every part of the body by means of the *nerves*. It is by these that the muscles are made to act under the direction of the will. By directing my will to the muscles of the fore-arm, I readily bend it on the upper arm, because there is direct communication with the brain by means of the nerves. If these be divided, I might will my arm to move, but it would remain motionless. The brain being the seat of impression, naturally leads us to the organs of sense, which are dependant on the nerves. To judge of the qualities of bodies, their temperature, and size, we are gifted with the faculty of *touch*. From the hand being so minutely supplied with nerves, no part is better fitted to the purpose.

“We have as yet provided only for the lowest degree of sensitive existence. It has been beautifully observed by a distinguished writer—“We must open channels of communication with different objects, we must apprise this being of his danger, we must inform him of the situation of those objects which are subservient to his wants, we must shew him the surrounding world, we must lift up the curtain of darkness which conceals it, and admit him to the glorious spectacle of nature’s scenery, and apprise him of the eventful changes that are hourly transacting around him, and in which he is called upon to play his assigned part. To the sense of touch, then, we add those of *sight* and *hearing*.” By the beautiful construction of the eye, a faithful delineation of the external scene is painted on the expansion of the optic nerve, and by it conveyed to the brain. By the curious mechanism of the ear, sound is collected, which, striking on the expansion of the auditory nerve, recognizance is taken of it by the brain. In addition to these faculties, and also depending on the nerves, we are gifted with the organs of *smell* and *taste*; the former residing in the nose, the latter in the tongue.

“To perpetuate and preserve a being thus formed, Providence in his wisdom has made male and female. By a process veiled in mystery new beings spring forth, grow by the same power, exhibit the same succession of phenomena, and after having in their turn given rise to another race of beings, yield, sooner or later, to the imperious laws of mortality. All living bodies must die—death is the necessary effect of life, which, by its very action, seems gradually to alter the structure of the human body, so far as to render its continuation impossible; for the living body undergoes a gradual but constant change during the whole period of its existence.”

Further proof cannot be required of the lofty position which medicine and surgery hold in the extensive and populous town of Birmingham; and while talent of such order exists in the heart of the kingdom, so favourable to the inculcation of medical knowledge, we may venture to predict that the metropolis, in the course of time, will have a competitor capable of dividing the advantages and attainments, which are now, with few exceptions, so exclusively confined to the range of its jurisdiction.

REMARKS ON INSECTS, PICTORIAL AND POETICAL.

BY EDWIN LEES, M. E. S.,

HONORARY CURATOR OF THE WORCESTERSHIRE NATURAL HISTORY SOCIETY.*

SCIENTIFIC opinions and systematic arrangements are for learned bodies and purely scientific men; we have our choice, then—to mount up into the clouds, beyond mortal ken, alone in our sublimity—or to be contented with the less dangerous though lower station of the green earth. In other words, our language must be adapted solely for the initiated in the mysteries of science, or we must take the trouble, if we wish the audience of the world, to speak a language the world can understand. Hence the propriety of employing those popular illustrations that might otherwise be considered as fanciful or puerile. Mr. Newman, as if in despair of producing a favourable impression in behalf of entomology, rather forbiddingly states that “the collector of insects must make up his mind to sink in the opinion of his friends, and be the object of the undisguised pity and ridicule of the mass of mankind.”† I must confess, if this were really the case, I should feel inclined, like the blue-bottle fly, in November, to seek some comfortable cranny, safe ensconced behind my books and cases, where “good-natured friends” were not very likely to lay their hands upon me. In short, I should not by my buzzing give any tokens of my existence, but remain as quiet and snug as possible. As for a good-humoured laugh, we must expect it in this world, let our pursuits be what they may; but I can scarcely think that the entomologist has a greater load of obloquy to bear upon his shoulders than the devotees of other sciences—unless, indeed, he does as Peter Pindar makes Sir Joseph Banks do—break into a garden, and upset the gardener, glasses, flowers, hives, &c., in pursuit of an emperor butterfly. Some old stories, in the “Spectator,” of legacies of grasshopper’s legs and butterfly’s wings, perhaps seem to make against us, and some “Saw-flies” of the present day‡ occasionally attempt an impotent stroke. But these are “trifles light as air,” no more needing serious attention than the game at tick which the merry flies amuse themselves with, and which they get up so early in the summer time to practise around the curtains of our bed, or circling about the ceiling. Some flies seem not to relish the liberty

* Having recently delivered a Lecture on the “Connection of Botany with Entomology,” before the Worcestershire Natural History Society, in which I traced the Physiology and Economy of the Insect Tribes, I was requested to furnish the Editor of “The Analyst” with my notes, for an entire Report. But in such a form the paper would be too long; and perhaps, therefore, extracts from the more illustrative part will be considered most interesting.

† “Grammar of Entomology.” By Edward Newman.

‡ See a curious paper that appeared a few months since in the “Dublin University Magazine,” on the pretended introduction of a new large variety of the Flea.

thus taken with their persons, and buzz an angry rebuff, but they soon see a joke is only to be smiled at, and push about in their turns, till all enjoy the spirit-stirring exercise. For my own part I know I have been more laughed at for attempting to carry off part of the entrails of a mountain, than ever I expect to be from the pursuit of entomology; and indeed, I must confess that I have often wondered that some tenacious lord of a manor has not prosecuted the geologist for purloining the stone from his quarries, sometimes to no inconsiderable extent; while the most litigious will scarcely object to the capture of an insect.

In sober seriousness, however, if any one objects to entomology as a frivolous pursuit, I at once unhesitatingly claim for it the lowest and the highest position any science can aspire to, and if its aspect satisfies us in both positions, there can be no fear that the whole picture can be satisfactorily filled up. I then claim for entomology the rank of an innocent and rational amusement. If it were only this, if it merely afforded us pleasure amid scenes of romantic beauty—rock, water, and wood—if it merely led us from the tainted air of the pent-up city, to the breezy fragrance of the heathy wild—if it merely whispered pleasure—that pleasure which they only know who have found

“Divine oblivion of low-thoughted care”

in the contemplation of the wonders of creation—it would, only thus constituted, be not without its use. It is, indeed, true, that the objects contemplated by entomology, are, in general, minute; but insects make up in numbers for their want of bulk; and when the celebrated Dr. Edward Clarke, in his travels in the East, complains that the king of the fleas kept his court at Tiberias, I dare say he felt no wish for the increase of bulk of his skipping majesty. In fact, we may resolve all questions of bulk into the shrewd and sensible answer of the Spartan soldier, who when about to proceed to battle, was reminded that he had no emblem on his brazen buckler. But he pointed to a fly on the central boss, and informed his friends that however they might ridicule the emblem he had chosen, he should approach the enemy so near, that they would be as sensible of his presence as if he bore a more formidable ensign that might be known from a distance. So if any demur to the minuteness of the objects contemplated by entomologists, we may tell them to bring their eye to the microscope, and only approach as near to the object of their research as the Spartan brought his shield to the enemy, and if magnitude be their aim they need not be disappointed.

I shall not enter into any lengthened argument on the subject of cruelty to insects, a point often needlessly insisted upon, since their internal structure proves their obesity of feeling; but I may note a few examples of insect endurance and vitality. A drop of Prussic acid, that would destroy a rabbit, has been put upon a fly, who only suffered temporary inconvenience, and afterwards flew

away. A tipula, or crane-fly, loses leg after leg, by mere accident, without its evolutions being at all affected thereby; and cock-chafers may be often seen moving about with only their head and elytra, having had their abdomen devoured by some bird. The flies that Dr. Franklin found in a bottle of wine that had crossed the Atlantic, and which, though apparently dead, revived in the sun, are well known. But a much more extraordinary circumstance is stated in Rennie's "Field Naturalist," of a quantity of bees imported in some hives from Holland, which are stated to have revived and flown about, after having been well boiled in a furnace! Not having witnessed the operation myself, I would not pledge myself as to the degree of temperature attained by the water in the furnace; such a power of enduring heat seems more than can be possible, even to insects, unless future observation should confirm it;—and we all know it is certain death to the poor fly who, anxious for a drop of savoury cream, slips down the glazed porcelain into the scalding tea. Such accounts recal the caustic language of Cowper:—

"Can this be true?" an arch observer cries;
 'True, Sir, it is,—I saw it with *these* eyes!'
 'Sir, I believe it—on *that ground alone*:
I could not, had I seen it with my own!'"

Yet it is possible to be too sceptical. Mr. Spence, one of the most eminent entomologists of the day, relates that a beetle he once immersed in hot water, so that it seemed dead, afterwards came to life again; and Kirby and Spence affirm that bees will revive after being submersed in water for *nine hours*;* so that they have a better chance than Gray's cat, which—

"Three times emerging from the wat'ry flood,"

mewed in vain for a deliverer.† I shall here mention an instance of insect vitality that fell under my own observation a few years ago. Having purchased a second-hand microscope, with various objects fitted up for observation, I noticed that among them was a group of aphides, (plant-lice,) with eggs, glued down to the glass upon which they were placed. These I had several times looked at without observing anything extraordinary. But one evening, some visitors wishing to view the microscope, I brought it for some time within the powerful influence of a gas-light, when, to our astonishment, while gazing at the aphides, they actually assumed motion, and crawled away from the glass beyond the range of vision. At that time the microscope had been for some months in my possession; and on inquiring of the optician from whom I had purchased it, he was of opinion that the aphides had

* "Introduction to Entomology." By Kirby & Spence, 4 vols. 8vo.

† A curious instance is mentioned by the Rev. Revett Shepherd, of a spider, which gets a comfortable subsistence by rowing about in a raft among drowning insects, and *rescuing* from a watery grave such as he could lay his fangs upon.

been glued to the glass for several years. If insects, also, are placed beneath an exhausted receiver, and left, apparently dead, for some days, they will again revive when taken out.

All these facts seem to prove the obtuseness of feeling in insects, and at the same time their astonishing retention of vitality. While, therefore, I would not for a moment defend the brutality of a Domitian in impaling every fly he could meet with, I think we are fully justified in taking, for scientific purposes, whatever insects we may require. If, indeed, an ichneumon were to remonstrate with us as we removed him from our net, we might gently hint to him that he himself had caused the destruction of numerous caterpillars, and would continue his murderous practices even if we spared his life. Indeed, the very persons who charge entomologists with cruelty, are themselves, in many instances, guilty of similar acts, with not half so good an excuse. I have occasionally been in society where the appearance of a poor spider only quietly taking a walk, or an elegant wasp which only wanted a taste of fruit, has caused irrepressible consternation—tongs, shovel, and poker, have been all raised for its destruction, and ere a humane entomologist has had time to implore a respite, the poor insect has been hurried out of life! The fact is, even humanity (so called) has its bounds, and it is as absurd to decry the taking away of animal life for useful purposes (of course in as quick a way as possible) as it is for the Banians in Hindostaun to establish hospitals for the support of vermin abhorred in all other countries. And yet a pseudo-humanity might reach such a pitch as this, which, carried out to its full extent, would justify the establishment mentioned by Lieutenant Burnes, of a large colony of about 5000 rats, at Anjar, in Cutch, one of the cities of India, which are actually maintained with flour at the public expense, by a tax levied upon the inhabitants!

The degree of sensation experienced by insects having been much disputed, I shall cursorily advert to their nervous system, as the only correct mode of arriving at the truth, analogical arguments as to the feelings of man under the impression of pain being of no value in this case, which must be at once allowed when it is recollected that a fall from a tower which would dislocate every bone in a man's body, would have no effect upon the frame even of an apterous insect. In vertebrated animals the brain is in the head, and all the nerves originate in the brain; hence the volition impressed upon the brain is conveyed to the nerves, and the order obeyed. If the brain is injured, or the head cut off, rationality and life ceases. But in insects no true brain is discoverable;—a nervous cord extends through the body, with masses, or knots, called ganglions, at certain intervals. We may thus understand how it is that an insect deprived of its head, or any other part of the body, moves and acts as usual, because each of these ganglia is a separate and independent centre of volition, and will act, therefore, either with or without the rest. Cockchafers (*Melolontha vulgaris*) may be often seen in the summer, whose entire internal system has been

scooped out by a bird, but the head still appears perfectly active, and able to discharge its usual offices. From the nervous system it is that we are enabled to form an idea of the senses of animals, because the nerves obey the impulses given at the seat of volition, and convey the sensation to the external matter; hence it is commonly observed of an individual who displays some unaccountable antipathy to the roar of cannon, the levelled bayonet, or any other apparent or fancied danger, that he is a *little nervous*. The question then arises as to the senses of insects under *their* nervous system. That love penetrates their coriaceous covering there can be no doubt, and if the glow-worm, like another Hero, does not light her nocturnal lamp as a signal for her lover, it is unknown for what other purpose the fairy light can be employed.—

“Queen of the dusky eve she pensive glides,
A train of glory gleaming from her sides;
Where'er she turns appears the vivid ray
That cheers the ling'ring lover's weary way.”

Perhaps this is confirmed by the fact that glow-worms seldom stray far from their usual haunts; for I know situations where, in the summer season, numbers may be found, with certainty, gemming the turfy bank every evening, while they are unseen in other places for miles round.

Instinct, or some stronger sense almost allied to reasoning, certainly appears in insects; for a female moth, confined in a box within a room to which there was no apparent access, has been found by some unknown means to cause the visit of a companion, who was obliged to descend down the chimney; and nothing is more common among entomologists than to capture other moths by enclosing one in a box, and leaving the window open that its situation may attract the sympathy of others of its species. Insects, then, it is evident, are able to receive and communicate information to each other, and Dr. Franklin relates a story which is a very remarkable illustration of this point. Having placed a pot containing treacle in a closet infested with ants, these insects found their way into it, and were feasting heartily when he discovered them. He then shook them out, and suspended the pot by a string from the ceiling. By chance, one ant remained, which after eating its fill, with some difficulty found its way up the string, and thence reaching the ceiling, escaped by the wall to its nest. In less than half an hour a great number of ants sallied out of their hole, climbed the ceiling, and descended the string into the treacle-pot, directed no doubt by the ant who had conveyed intelligence to his friends of the only way of access to the booty. Ants are fully sensible of the advantages of combination to give effect to what their individual efforts would be unequal, and I once witnessed a curious instance of this unity of purpose in the common brown ant (*F. fusca*.) A garden spider having crossed their path, they seized him by the only practicable method—one ant fastening himself at the extremity of each of the spider's long legs, like so many sailors

tugging at opposite ropes, thus keeping the spider's legs in full tension, and never relaxing their hold, they forced him unwillingly along; unable to extricate himself from custody, and no rescue appearing, he finally disappeared from my sight in the dark defiles of the nest.

Insects certainly enjoy the sense of touch, but it would seem to be confined to the antennæ and feelers in front of the head, which appear, in most instances, to precede their steps, and probably possess the same delicate sense as the whiskers of the feline tribe. The *Ichneumonidæ*, in particular, are perpetually waving their antennæ, and thrust them down holes, as if to obtain information otherwise unattainable, which they would hardly do if, as some suppose, the antennæ were in reality merely ears. De Geer conceived this idea from observing a coleopterous insect, apparently asleep, rouse up its antennæ quickly at a loud noise he made. But this it would have done just the same on the supposition that it is the organ of sensitive feeling—for, hearing the noise, and seeing nothing, it would naturally stretch forth its antennæ to ascertain, if possible, on which side danger threatened. I have generally found that insects are very sensible to any injury offered to their antennæ, and I have observed a species of podura fall into convulsions from its antennæ being cut off in examining it. The tarsi are also useful organs of touch in insects—in many having a broad spongy surface, which, among flies, is applied with great facility to enable them to walk upon the smooth superficies of any object.

The insect tribes have evidently more of epicureanism about them than we are generally aware of; they possess taste, therefore, to a considerable degree, and many have organs for the production of saliva. It is true that certain caterpillars are omnivorous, but the greater number will die sooner than touch a viand that is disagreeable to them. The seat of the olfactory nerve in insects is a disputed point; but that odours affect them there can be no doubt, for how otherwise would the flesh-fly discover putrid flesh, even in the most secluded spot. Some insects even give out the musky odour so much cherished, though others have an effluvia altogether unpleasant.

Hearing is another sense possessed by the tribes passing in review before us, though there is no apparent external ear, and we can only judge by analogy, as the aural nerve has not yet been detected. But to what end would be the boom of the bee, the buzz of the fly, or the hum of the gnat, if hearing was denied to them? Does the

“ Pretty cricket, full of mirth,
Chirping on our kitchen hearth,”

roll out his merry song to deaf ears?—This is hardly probable—and must be considered impossible, if what I have now to communicate be correct—but at present I must admit I cannot say “*probatum est*” to it. Some months ago a gentleman applied to me for information how to exterminate some crickets, which made

such an obstreperous noise every night in his house, as to banish peace from the place. The only method I could at that time recommend was the issue of *personal process* against the cricket, in order that he might be compelled to appear before "Our Lord the King, at Westminster." But I have since learnt an easier remedy, which I shall state for the relief of all enemies to noise. On some evening in the cricket season, procure a band, the greater the number of instruments the better, and it is of no consequence if the amalgamation of sweet sounds be altogether harmonious or not, so that the *noise* made be considerable. Let this din be kept up throughout the *whole night*, and the crickets will be so astounded that they will forthwith slink off, and desert the haunted mansion.

On the organs of sight I shall not here dilate—their structure is however, remarkable. Nearly all winged insects have compound eyes, which consist of a great number of hexagonal slightly convex lenses, of which 17,325 have been counted in the eye of a butterfly.

The instinct, mind, or whatever else we please to call it, in insects, must assuredly place them next in rank to the vertebrata, many of whom they surpass in skill and ingenuity. But then this skill is impressed upon them, it is thought, when they enter the world, and they are precluded from a higher advance in the scale of perfection. Perhaps this opinion will hereafter be found to require some modification. What ideas they may entertain of man we can hardly imagine, because perhaps none, certainly very few insects, can be said ever to have been tamed. Bees, indeed, partly domesticated, certainly know their owner, and will bear from him liberties they would not from a stranger. They would seem also to possess a higher degree of intelligence than most other insects, and this is confirmed by their anatomical structure. For Straus Durckheim remarks,* that as in higher animals the degree of intelligence is in proportion to the number of convolutions of the cerebrum, so he found that hymenopterous insects (among which bees rank) were the only ones where he could detect in the ganglion, or brain of the head, any well-marked convolutions. Wasps seem often to act as if instigated by passion, and generally rush furiously to attack the face, as I have found to my cost. It seems, however, somewhat strange, that in attacking a wasp's nest, no fear need be entertained from the bands that are out on duty, provided the garrison within are secured, and prevented from egress—if any of these are enabled to come forth and communicate the state of affairs, the event may prove serious. A collector I was well acquainted with, informed me, that having one afternoon dug up a wasp's nest for the sake of that curious interloper amongst them, the *Rhipiphorus paradoxus*, he was carrying it off rather carelessly, when, the entrance not having been so fully closed up as it ought to have been, two or three wasps contrived to get out, and almost

* Bull. des Sci. Nat.

immediately he was so furiously assailed by a battalion before unobserved or unnoticed, that he was compelled to throw down the nest, and seek his safety in flight. In this case it would seem that the wasps out of the nest did not understand what was taking place in their mansion and treasures, till informed by the few who, having escaped from within, suddenly cheered them on to the rescue. Spiders, closely allied to insects, have formed intimacies with prisoners, in whose cells they had fixed their abodes, and have learned to come out of their webs when called ;—but how far they understood the connection thus made, or if it was merely an impulse to obtain food, is a fact not clearly ascertained.

In one respect, it must be confessed, insects are deficient—they have *no voice*. With all their humming, booming, buzzing, piping, chirruping, creaking, droning, whizzing and whirring ; aye, notwithstanding a thousand seeming evidences to the contrary, and the assertion of the Bard of the “ Seasons,” that

—————“ The burnish’d *fly*
Sprung from the meads, o’er which he sweeps along,
Cheer’d by the breathing bloom and vital sky,
Tunes up amid these airy halls *his song* :”

Notwithstanding this, and the delight every one must have experienced from standing in the midst of a rich balmy-breathing field, gay with May-flowers, and listening to the multitudinous variety of insect-sounds that now rising upon the gale in trumpet-like clangors, now falling into the softest and gentlest *almost* unheard murmurs, soothe the ear, and impart a delicious—a luxurious tranquillity ;—notwithstanding what is familiar to all

—————“ the ceaseless *hum*
To him who wanders through the woods at noon,”*

and resting beneath some grotesque yew tree, dark with refreshing verdure, dozes in sweet repose, while the bees, among the banks of mellifluous thyme, as they wing from blossom to blossom

“ Travel with *audible melodious hum*,”†

soothing him to that ecstatic rest which the tired pedestrian of a summer’s day can only appreciate ;—even the wish of Milton

—————“ Hide me from day’s garish eye,
While the bee with honied thigh,
That at her flowery work *doth sing* ;”—

is unavailing—for it must be admitted that insects are altogether deficient of the legitimate organs of speech ; they have no larynx, and consequently any noises they make are merely mechanical—just as any one may clap their hands, beat a drum, or whirl a stick round. This certainly affords some ground for the celebrated sarcasm of Xenarchus the Rhodian ;—

“ Happy the Cicadas’ lives,
Since they all have voiceless wives.”

* Cowper.

† Bidlake.

But Xenarchus forgets to tell us, or did not know, that if lady insects cannot raise their voices in an unpleasant key, many of them are possessed of a more powerful weapon than voice—a poisonous barb, or sting, which no male insect is entrusted with; so that before we adopt the reform sarcastically suggested by the crusty old Rhodian bachelor, we had better inquire whether “the harmony of sweet sounds” with an angel’s form, is not more endurable, than if mankind had literally to conquer voiceless Amazons, armed with sword and buckler.

My concluding sketches of the economy of insects, and the bright and lovely images called forth by the transformations of several of their charming tribes, I must defer till next month—for having now spun out my thread, I feel it necessary to repose in chrysalis, till called forth to a new existence amidst the splendid landscapes of July.

SONNETS.

I.

Suggested by a Scene in Cowleigh Park, near Great Malvern.

HERE let me linger, while yon shadowy wood,
Now flush’d with sunlight, slowly waxes dim:
For hark!—a solitary warbled hymn
Flows from its deep and dreamy solitude.
Is it the nightingale, that loves to brood,
And chaunt her sorrows here, yet shuns reply?
The sounds, at times, bespeak a downcast mood,
At times attain sublimest ecstasy.
Sweet forest-haunting sprite!—thy every tone
Teems with pure thoughts, and with each rise and fall
My pensive Fancy moves in unison,
Rejoicing to become thy gentle thrall,
And treasure up, until the strain be done,
Thy gems of song so richly musical.

E. S.

II.

To the Flower called Veronica chamædrys—the Germander Speedwell.

THOUGH the wind lulls, the storm-cloud scarce is past,
As yet the rainbow brightly spans its shower;
But thou, whose blue eye closed beneath the blast,
Already peepest at the sun, dear flower!
No fairer recompense, no lovelier dower
In her green lap rejoicing May doth bring,
To woo the glittering insects to her bower,
Or lure the coyly-tweeting birds to sing:
Thou wert my childhood’s darling,—and I sought
Full oft on sunny banks the sapphire bloom
Of thy young blossoms,—and in later hours,
When Science to my mind her wonders brought,
How eagerly I longed for thee to come,
And teach me all the mystery of flowers.

E. S.

ON THE TENDENCY & PROSPECTS OF MECHANICS' INSTITUTIONS.*

BY W. HAWKES SMITH.

It has been facetiously declared to be "contrary to the laws of England to make a man happy against his will." This is, after all, a very judicious maxim, and, well attended to, would check the impertinence of many an officious meddler. My object is, to prevent such an imputation from attaching itself to me. I am the perpetual advocate of Mechanics' Institutions, because I am fully convinced that these institutions tend, more than any other of *equal cost*, to produce increased knowledge and intelligence—and that such increased knowledge and intelligence, well and fearlessly worked, are the surest road to increased happiness. This is my firm opinion, and it is the result of years of reflection and observation.

In what does happiness consist?† In a series of pleasing impressions;—and it were not difficult to shew that such a pleasing series must flow from intellectual sources; from intellectual, as opposed to animal enjoyments. Still, however, human nature claims a certain portion of physical comforts as necessary ingredients to happiness, and if, on inquiry, it be found that the world is capable of supplying these comforts in abundance to all, it becomes a duty to endeavour to obtain the desired distribution. And on whom is this duty most manifestly paramount? Surely on those who *suffer* from the *unequal distribution* of the means of physical comfort. Let them inquire, then, what are the qualifications which enable men most surely to acquire the desired share, and they will soon perceive that it is the possession of a *good education*. This is now pretty much seen, and the effects of the discovery are curiously diversified. Some would quietly close—or being closed, would keep fast shut, the doors of the temple of knowledge, against the working people, *because* they apprehend that the diffusion of knowledge would inevitably lead to searching inquiries into the means of a better diffusion of comforts. This is sheer selfishness. Others perceive that there is a disposition excited to acquire information, and they

* Being a portion of a lecture lately read before the Birmingham Mechanics' Institution.

† Since this lecture was written, I have seen Simpson's work on "Popular Education as a national object." Would those who have not yet considered the subject closely, sit down by fifties in a company, night after night; deputing one to read aloud from this important and most intrepid work, and determine to *act as* the convictions which might be induced—we should have a chance of seeing the *search after happiness* rationally conducted.

flatter the working classes—call them “intelligent artizans,” and other pleasant denominations,—and would give them a certain share of abstract information to amuse their leisure hours.

But again—there are some who boldly say that wherever *faculties exist*, they may be *safely cultivated*;—and who fear not that the great social system will suffer damage, even should the gradual destruction of *castes* be the consequence of such cultivation. Observing the nascent desire of improvement, they see no evil, and apprehend no danger from its increase, and would urge it forward as the probable means of extensively communicating *general* happiness; interposing their assistance as *guides*, not standing in the way as *checks*. They would lay down *rail-ways*—not hang on *drags*. They unhesitatingly declare, with the enlightened and liberal Chandos Leigh, whose words I have in another place already quoted,* “The *people* cannot easily know too much;—they may easily know too little.” Too little for the best interests of well-conducted society.

“I wish,” said King George the Third, some five-and-thirty years ago—and the saying was a remarkable and a bold one, as coming at that period from an individual holding a station so little advantageous for the cultivation of liberal views—“I wish that every poor person in my dominions may be enabled to read his bible.” The wish, emanating from such a quarter, could not be gainsaid or directly opposed, and Lancasterian Schools and National Schools were established. Very many would probably have excused the King, had he been less liberal, but the word had gone forth; and it was unperceived that *reading* alone would not satisfy. The determination of the people to acquire more than *elementary* knowledge afterwards induced Lord Brougham to advocate the foundation of Mechanics’ Institutions. He brought into free and specific action the desire that was kindled. He encouraged the people to infuse *mind* and *intelligence* into what was before almost a mechanical operation. To read,—to write—to cast accounts—though too much by two thirds for many quietistic politicians, was far too little for the excited wishes of those who were becoming aware of their mental powers, and the class studies of Mechanics’ Institutions took a more extended and academic form, and are now conducted in a mode that—*time for time*—is equal to any thing than can be provided for the youth of any station. Nor are the gates of science less freely opened, in the lectures that are delivered; nor is their circuit bounded by any narrow or selfish considerations.

Who expects that a course of lectures on Astronomy, on Geology, on Acoustics, or Electro-Magnetism, will cause a man to become a more skilful workman at the stamp or the lathe—more useful as a clerk or a packer? I am not content that our ingenious population should be taught mechanics and chemistry

* See the Report of the Mechanic’s Institution inserted in our last number.

simply because these pursuits have relation, real or imagined, to their occupation as workmen;—I would have them instructed in the sciences in general,—as *human beings*,—and because, being by nature *capable* of comprehending the properties of mind and of matter, these properties *ought to be* rendered familiar to them—or else their powers of comprehension are in so far wasted or degraded, by being confined to inferior objects.

But some kind friends of the industrious classes are fain to mourn over the havoc which will be made in their comforts, by the attainment of such a stock of general information as I have alluded to. The fate of *smatterers* is in their mouths, and they are apt to quote the lines of Pope as oracular and decisive—

“A little learning is a dangerous thing,
Drink deep—or taste not the Pierian spring.”

Now this maxim taken without limitation is a fallacy. There is no danger in having a *little*, if your opportunities do not permit you to get *all you would*. What should we say to the working man, who, entering his house at dinner time, and seeing the uncostly dish of potatoes and the modicum of bacon, which his frugal wife, with an eye to the fare of the morrow, had provided—should overturn the table, scatter the provisions, and trampling them under foot, express himself thus in heroic vein—

“The spare repast I hate—be these my wishes,
Fat *beeves* or *famine*—feasts or empty dishes!”

or what kind of counsellor should we hold him to be, who, addressing a knot of persons waiting the opening of the doors of a Savings Bank to deposit their small sums, should mock their care and rebuke them thus—

“Your *little dabs* of cash are useless things,
No paltry *thrifts*!—be *beggars*—or be *kings*!”

The first of these instances would be pronounced an absolute fool or madman;—and the second could only claim the possession of his wits by avowing his selfish treachery;—that, wealthy himself, he could not bear that the *lower classes* should take any well-concerted measures gradually to accumulate for themselves a moderate share of wealth.

Suspect, then, the judgment or the intentions of those who talk with horror of *smatterers*—who indulge their small fancies in tirades against royal roads to learning, and railways to science.

There is an aristocracy of intellect as well as of birth or of purse, and those who have by weary inches delved their way into the mine, are proud of their success;—and perhaps, vain of the pains they have taken, they are unwilling that others, by any less laborious process, should reach the precious deposit. “The evil,” as the president of the Birmingham Philosophical Institution well said in one of his instructive lectures—“the evil consists, not in knowing *a little*, but in fancying that we know

much;"—and this kind of fancy, this conceit, will be less and less prevalent as knowledge becomes more generally diffused.

The advance of science is rapidly bringing on a state of things which our Mechanics' Institutions are preparing to meet without hazarding the derangement of society. The Rev. James Martineau, at the last annual meeting of the Liverpool Institution, used these remarkable words—"Machinery is rapidly supplanting human labour, and rendering mere muscular force a *worthless drug*. That natural machine, the human body, is depreciated in the market. But if the *body* have lost its value, the *mind* must get into business without delay. The intelligence of man must be *brought to the mint* and *coined*, and set in instant circulation."

I like to hear such sentiments—far better are they than the advice of the speaker's clever sister, and of a whole clan of political economists—to reduce our working population, in order to secure employment to those that remain. The complainers, the well-informed people of the old school, may perhaps beset Mr. Martineau, and rejoin—"But what are we to do, if the dominion of *heads* be invaded by the desertion of whole legions from the realm of *hands*?" And if the question were put to me, I should answer—"That is not the affair of the population of *hands*." I only feel quite sure that a really well-informed people—a people universally educated, would not long continue to suffer the strange anomalies which now prevail in our social system; and the way to prepare for such change rationally, is to equalize, as far as possible, the advantages of education—to abolish all feelings and prejudices of class or caste—and to encourage *all* to consider themselves as HUMAN BEINGS.

When the *steam engine* was perfected, half the *external* distinctions of rank vanished;—the new power rendering manufactured articles more accessible. But the effects of scientific advancement will not be branded by the cheapening of silks, calicoes, and hardwares. There is an *intellectual* machinery, a *mental steam power* at work, and still rising in its action, which renders *education* proportionally as cheap and as attainable to the man of small means, as his clothing and his domestic appointments.

There is a science which, in spite of the sneers of its opponents, —in spite, too, of the extravagance of its supporters, is slowly and gradually winning its way into general respect and estimation. I allude to the science of *phrenology*. The poet sings

"Full many a gem of purest ray serene
The dark unfathomed caves of ocean bear;—
Full many a flower is born to blush unseen,
And waste its sweetness on the desert air." GRAY.

This may be of little consequence in reference to such things as corals and cowslips—pearls and polyanthus; but it is another affair when applied to human beings. It is there an

error, not an *accident*; there ought to be no sentence of—" *Their lot forbade*," interposed between the capacity of man and its full development.

Dr. Eppo, whose name I was glad to read as a lecturer on Phrenology at the Liverpool Mechanic's Institution, and who addresses large audiences in London, scruples not to declare—"It is a truth which our science demonstrates, that society never *was* and never *can* be in any other state than an agitated one, until *every* human being have *every* opportunity of exercising *every* faculty which God has given him."

A Mechanic's Institution, vigorously conducted, becomes a school of Phrenology. Let all, then, become practical professors of the science, and lend their aid to the complete exercise of the powers of the mind.

[Here follow various statements relative to the progress and prospects of the Birmingham Institution, which the extracts from the "Report" in our last number render it unnecessary to detail. Allusion is also made to the character of the lectures that have been delivered during the last year, which induces the following observations on the different branches of the institution.]

I need not repeat and re-urge the advantages derivable from attending lectures. They give the first flash—the clear, elucidatory insight into *principles and facts*. They often impress the mind with a valuable series of general ideas, which form the *scaffolding* by which the edifice, by after efforts, is erected. But they are not the *only*;—they are not,—properly considered,—*the principal*—the *most valuable portions* of Mechanics' Institutions. It is the *classes* and the *library*—the unobtrusive—the unglittering portions—which form the *really*—the profoundly beneficial characteristics of such institutions.

Lectures carry us on by *leaps*, and leave in the field of knowledge, here and there, a mark where we have reaped. It is by regular continued studies—by sedulous application only, that the intermediate spaces can be cleared. These alone qualify us to rejoice in the abundant harvest. These alone will place us on the stubble land—triumphantly exclaiming—"The produce of this field is mine—is mine. It is reaped; it is gathered; it is housed for my after use."

On glancing over the Report of the Liverpool Institution, I perceive modifications of classes for the study of chemistry, mineralogy, political economy, and natural history—by *mutual instruction*. At Manchester they have a class for *music*. The wise Government of Prussia in its arrangements for public instruction makes *music* a matter of high importance. It is well. Nothing tends more to refine the mind and to give amenity to the manners than the cultivated perception of the harmony of sounds, and yet this pleasing study is not one which claims attention, as *useful*, in the *pounds, shillings, and pence* acceptation of the term.

The lecturer here enters, at considerable length, into details connected with the finances and conduct of the institution, and remarks in conclusion—"Charity," says the Apostle—that is—Christian fellowship—brotherly kindness—the benevolent, well-regulated mind "thinketh no evil"—"envieth not"—it "seeketh not its own"—that is, its improper aggrandizement,—but it is added that it "rejoiceth in the truth." That is, its energies must be kept awake to the perception of what is right and good, and these ends must be pursued with alacrity. Be such our confiding—such our *active, discerning* charity, and this institution will soon take a different rank in the town from that which it has hitherto held. Sunday Schools, Lancasterian, and National Schools—Temperance Societies—Provident Societies, in all their widest operations, should be considered but as inductions, auxiliaries, adjuncts, to Mechanics' Institutions. It is ours to apply to their best and final uses, the advantages gained by these excellent subsidiaries. "Above all thy getting," says the wise king of Israel, "get understanding." This great acquisition is to be made, especially, *HERE*. It is *HERE*;—it is in *Mechanics' Institutions* that we shall best learn our own power and the mode of wisely using it. If a change for the better is needed in our social relations—as writers of all creeds and all opinions intimate—it is *here* the nature of that change shall be best comprehended. It is where knowledge holds her seat that the change shall be contemplated with the steadiest eye—that the most determined voice shall utter—"it is coming." While the joyous chorus shall be re-echoed by all the worthy—all the discerning—all the benevolent—"It must come—and let it come."

FINE ARTS.

WHILE copious and earnest commentaries are bestowed upon music, poetry, and the drama, it is still to be lamented that the pen of the reviewer too often skims, like the rapid wing of the swallow, over the subject of painting and sculpture. A few hurried lines, frequently most cruelly seasoned with the hot spice of critical sarcasm—a mere word or two of *general* praise or censure—a *running* nod of recognition—a sneer or a smile *en passant* are, for the most part, all that are conceded to the toils of the artist—to hours wasted by the midnight lamp, and to days passed from the early dawn to the dim twilight in the solitary pursuit of science. In vain the genius of historical painting put forth its magnificent conceptions, and the deathless creations of the chisel appeal by their impassioned beauty and grandeur to the eye and the brain of the reviewer; the briefest note in the tablet of ivory, and the narrowest space in the page are, even reluctantly, doled out to their claims. Yet what lengthy and numerous columns are lavished upon "the very last novel"—the jejune production of the silver-fork school—the melancholy

twaddle and indigested ideas of some "noble author" or "authoress" who fondly and foolishly dreams of immortality through the pen (!) and handsomely fees the fashionable bibliopole for the privilege of murdering his Majesty's English, and appearing in print. What overgrown analysis of the flimsy and butterfly songs of the day—the junction of epithet and the sickliest sentiment! what *close-sifting* of the little trilling melodies that charming the ears of the boudoir or salon, are, at length, to the delight of the lackey, murmured in the housekeeper's room by the mellifluous lips of her Ladyship's woman, and thence caught by the scullery-maid, make their way up the area to become the ultimate property of the publican's boy, who pathetically whistles them while scouring his pewter! What elaborate details of the pedal flourishing of some celebrated opera-dancer, who springs three feet and a half higher than any of his contemporaries! what grave criticism upon the saltatory movements and evolutions! what deliberation upon the respective merits of two rival *danseuses*! what profound dicta upon the "grand and the graceful" in *pirouettes*! what bustle and grief, and indignation, and absolute transports of sorrow, at the "*sudden indisposition*" or non-appearance of the prima-donna! A false note—a scarcely perceptible hoarseness—a sprained ankle—or a dislocated toe, are enough to fill the newspapers with clamour and lamentation, and to spread terror and confusion through the most brilliant audience that ever gladdened the optics of Laporte. But the decay of the "*Fine Arts*," the abandonment and distress of their professors, the futile struggles of genius with the heart-rending influence of public neglect, are nothing of any moment whatever—a fly perishing beneath the wheel of a waggon, or a withered leaf whirled through a forest, would be as seriously noticed, and the most splendid pictorial display is not more than the languid attraction of the hour. A freer spirit on the part of the press would, in a great measure, counterbalance the apathy of the fashionable world; —to lead—not to follow—is the critical province; but, unfortunately for the fine arts, there are but few exceptions to the too-venal practice of studying that which is *most amusing* to the general reader, rather than that which is instructive and valuable, tending to produce something of higher character than the fugitive entertainment of the moment.

In our first number we entered into a statement of the feelings and opinions with which we regarded *national art*, and the anxiety with which we should watch its career in this country, and assist in cherishing its efforts. We may now refer to the liberal space which we have, invariably, devoted to the subject, in proof of the sincerity of our professions, and we reflect with unmitigated pride and pleasure upon the fact that the fulfilment of our duty has been favoured with the gratifying encomiums of the public press.

In pursuance of the path which we conceive to be that of justice and sound sense, we select for the critical commentary of this month *one* publication to which we can pay the merited attention, in preference to crowding our given space with *a dozen* notices, unavoidably brief and unsatisfactory. Reserving for future remark Parts XVII., XVIII., and XIX. of Fisher's exquisite Lake Scenery, and the spirited, graceful, and beautiful illustrations (by Harvey) of the "Story without an end," we shall here redeem a promise given in our ninth number, and beg the reader to accompany us in our examination of

"*Finden's Byron Beauties*: a series of ideal portraits of the principal female characters in Lord Byron's poems."

In the present taste for fanciful and elegant design, uniting beauty with passion and sentiment, these illustrations, happily adapted to the

popular feeling, cannot possibly fail to be universally acceptable in the fashionable circles for which they are, evidently, designed. All that relates to Byron, all that has been heard, seen, or said of him, his every look and word, and tone, and whisper, his slightest gesture or most ordinary proceeding from the penning of "Childe Harold," down to the throwing off his pantouffles and drawing on his boots, have been put upon record and listened to and swallowed with dilated eyes and open mouths by the multitude,—and probably no man ever created a more generally extended interest than the "Bard of Newstead." It is not the peer alone who, seated in his library, surrounded by the wit, the wisdom, and the genius of all ages, turns his eyes with a high toned sentiment of exultation upon the undying inspirations of his brother *patrician*, the fame of the poet is familiar to *all*, and the intensity of interest with which he was viewed may be estimated not only from the overwhelming mass of "Recollections," "Tributes," "Souvenirs," "Conversations," "Particulars," "Memoirs," "Anecdotes," "Last days," and "Private Accounts," which hurried from the press with an alarming fecundity, but from the fact that every tagger of rhyme, from the bard of the drawing-room to that of the attic or counting-house, fell to and fancied that their anonymous and *anomalous* lines would mystify critics, and make men cry out "Ho! ho! Byron *sub rosa*!" Then his air, his dress, and his manners were studiously attempted by young medical men and clerks of delicate nerve and poetic complexion; nay an interesting degree of lameness, such as Charlotte de Bavière ascribes to the fair De la Vallière when she tells us, "*Elle boitail un peu; mais il semblait qu'au lieu d'y nuire, ce défaut ajoutait à ses grâces,*" was assumed by several, in order to perfect the identity of the resemblance. Read, quoted, talked of, thought of, and dreamed of, Byron has made, and his name will continue to make, noise enough in the world to render any well-conducted speculation of which he forms the basis free from incertitude, and profitable to the parties engaged in its issue. The work before us has already attained that degree of popularity which might have been foreseen, and in which its spirited projectors will find their reward. Six parts only have appeared, yet these are in everybody's hands, and on everybody's table; they greet us at every corner, smile at us from every printseller's window: go where we will we have "Zuleika" or the fair "Julie;" "Kaled" in page-attire, or "Leonora D'Estè," "the bright particular star" rising before us, and giving to the eye that which before was visible only to the imagination.

With equal liberality and judgment, the proprietors of the work have called into requisition the talents of various artists, thus judiciously diffusing their patronage, and increasing the interest of the illustrations. With her cultivated taste, her pure sense of the graceful and beautiful, aided by her long study of the antique, her skill in design, and her practical power over the materials of art, that gifted—but we fear *too-diffident*—artist, Miss Alabaster, could not fail to produce something of high character and loveliness—something most admirably calculated to add to the reputation of this charming series; we trust that a specimen of her genius—one of her exquisite female heads, will be shortly included in this collection, and when we revert to the brilliant and surprising *progress* evidenced by this fair enthusiast in her lately-exhibited picture, we indulge, fearlessly, in the warmest anticipations of her eminence—anticipating which we feel nothing but the continued delicacy of her health can possibly disappoint. In the six numbers before us we find that out of the eighteen portraits, one is contributed by J. W. Wright; three are by J. F. Lewis; *seven* by F. Stone; one is by W. Boxall, and one by that captivating painter Mac Clise; three are

by E. Wood; one is from the talented pencil of Corbould, and one from that of Miss Fanny Corboux. The first part contains the heads of "Zuleika," of "Donna Julia," and of "Donna Inez." (1) Zuleika is an exquisite imagining, full of tender and enchanting sensibility; the face is seen in three-quarter, and the arms are folded across the bosom; the hands are well drawn, and the features sweetly and delicately depicted; the hair is finely executed, and the drapery sharp and beautiful. This captivating plate is engraved by H. T. Ryall, from the design of J. W. Wright, and forms one of the loveliest specimens of the publication. (2) "Donna Julia," engraved by the same, from a drawing by J. E. Lewis, is clear, rich, and sparkling in effect; the details are finely discriminated from the delicate texture of the flesh; the minute markings of the features, the eye-lashes, brow, and hair, to the laces, silks, and lawns, and the jewelled trinkets which adorn the garb. The character of the countenance is in unison with the poet's conception. As an effort of the burin this print reflects infinite honour upon Mr. Ryall's abilities. (3) "Donna Inez," engraved by F. C. Lewis, from the original by J. E. Lewis; finely executed, but not so felicitous in *materiel* as the preceding; the head is too youthful, and the expression that of *pouting sullenness* alone; the artist has erred in his translation of the character. Part II.—(4) "Myrrha"—the "Ionian Myrrha," by R. A. Artlett, from the design of F. Stone, is a fair example of the engraver's powers—a clear and forcible *stipple*, managed with much delicacy and great effect. (5) "Anah and Aholibamah," from the same artist, by H. Mote, is not the happiest of his designs; heavy and tumid the countenances repel rather than attract admiration. (6) "Julie," the fair Countess d' Houdelot—the divinity of Rousseau—is a fascinating head, full of sweet, unassuming, girlish simplicity and grace, with the slightest possible touch of coquetry at the toilette: engraved by R. A. Artlett, from W. Boxall. Part III.—(7) "Kaled," engraved by E. Finden, from D. Mac Clise, is elaborately executed, rich in detail, and imposing in appearance: the error of the design is the rendering the *disguise of the page no disguise* whatsoever, as Mr. Mac Clise has, in his drawing, presented us with a *full figured female* in boy's attire; Kaled could not for a single day have escaped discovery, had the page stepped forth so imperfectly protected against detection; besides the *rounded* contour mars entirely the description of the poet—

"Light was his form."——

(8) "Parisina," by W. H. Mote, from F. Stone, is pretty, and consequently attractive; and (9) "Leonora D'Esté," firmly engraved by H. T. Ryall, from the same, is a beautifully executed print, but in the name of all that is graceful and rational, why did Mr. Stone substitute a literal *horse-tail* for the bright tresses of this divine and illustrious lady, and in what fit of extravagance was he betrayed into encumbering her eyes with *lashes* of such extraordinary growth? We have heard eye-lashes poetically entitled "fringe," but such absolute, long and heavy *curtain-fringe* we are quite positive we never beheld. Let Mr. Stone beware of such fantastic ideas; let him purify and elevate his conceptions of the *beautiful*, or he will infallibly degenerate into a mere designer of "*prettinesses*" for drawing-room albums.

(Parts IV. V. and VI. in our next.)

CRITICAL NOTICES OF NEW PUBLICATIONS.

Provincial Sketches. By the Author of "The Usurer's Daughter," "The Puritan's Grave," &c., &c., &c. London: Churton.

(Continued from our last Number.)

Brief as we must necessarily be, we yet contrive to redeem our promise of last month by reverting once more to the contents of this amusing volume.

Under the head "Country Newspapers" the facetious Author has concocted an article which, whether correct or not in its outline, Proprietors and Editors can best explain, but it is altogether of so ludicrous a complexion, that our readers perhaps will not be displeased to descend for a few seconds from the lofty pinnacle of science to smile at the whimsical manner in which the important business of Newspaper Editorship is treated by this disciple of the laughter-loving philosopher.

"Country newspapers are curiosities, not for their rarity, for they abound and super-abound; but for the peculiarity of their literary character. The English language in a country newspaper bears the same relation to the English language in general, as a rustic in his Sunday clothes bears to the general population of any large town or city. There are varieties of style, yet there is a oneness of character in it. The language of the editor differs from the language of his correspondents, and the original and local matter differs also from the extracts made from the London papers. But we shall be best able to speak of so comprehensive and complex a matter as a country newspaper, by taking up the matter analytically and viewing the several parts distinctly. A country newspaper is composed of various elements: firstly, of extracts from the London papers;—secondly, of local intelligence;—thirdly, of the editor's leading article; fourthly, of literary criticism;—and fifthly, of original correspondence—and very original that is.

"In the first place then, let us speak of the extracts from the London papers. People in the country like to know what is going on in London, and the editors of country papers generally give their readers a condensation of intelligence under the title of *multum in parvo*. This is a kind of Hamiltonian system of conveying the greatest possible degree of intelligence in the smallest possible number of words, so that one paragraph is made to do the work of twenty. For instance. "On Monday last his Majesty dined with the Duke of Wellington.—Ducks are selling in Leadenhall Market at four shillings the pair.—The Siamese ambassador wore a yellow coat at Lady B.—'s rout.—It is Lady C. and not Lady D. who has eloped with Lord F.—An affair of honour took place between two journeymen pastrycooks of the New Cut; the parties met at the back of Bethlehem Hospital and after firing two rounds of blank cartridge, the seconds interfered to prevent farther bloodshed. The cause of the quarrel is supposed to have been a dispute about the weight of a twopenny loaf.—There is no truth in the report that the Dowager Duchess of Horsleydown is about to bestow her hand on General Fitzhigginbo-

tham.—In the box lobby at the Adelphi Theatre last night, Mr. Smith called Mr. Brown a fool, and Mr. Brown called Mr. Smith an ass, further particulars in our next.—Last Wednesday the metropolis was visited by one of the most tremendous thunder storms in the memory of man. The hailstones were as big as cabbages, but the thunder could not be heard on account of the noise of the omnibuses and the bawling of the chimney sweepers.—Mr. Clarke has purchased Mr. Simpson's famous horse Blunderer, that ran against a brick wall last Greenwich Fair."

"There, now, what an immense deal of important intelligence is communicated to the provincial public in the compass of one short paragraph! But sometimes it happens that events of a more awful, serious, and mysterious nature are to be communicated to the readers, and then no curtailment or abridgment can be allowed, and instead of *Multum in Parvo* we have *Parvum in Multo*, as; *Remarkable and mysterious occurrence.* "On Tuesday last the family of Mr. Walter Wiggins, a most intelligent, upright, honest, and conscientious grocer, tea-dealer, tallow-chandler, cheesemonger and hop-merchant, of No. 76, Snipe-street, Wapping, was thrown into considerable alarm by the following extraordinary and mysterious occurrence. It appears, from all that we can learn, that Mr. Wiggins and his family, consisting of himself, his wife, two sons, three daughters, a shop-boy, and a maid of all-work, had retired to rest at their usual hour, half past ten; but they had not been in bed more than three quarters of an hour, when Mr. Wiggins, who is not the best sleeper in the world, thought that he heard a noise at the front door. Alarmed as he naturally might be at this unusual and mysterious occurrence, Mr. Wiggins woke Mrs. Wiggins out of her first sleep, in order to consult what was best to be done in this emergency. Mrs. Wiggins, who is a woman of great fortitude and discretion, immediately, with the most praiseworthy presence of mind, and without the slightest hesitation, recommended her husband to dress himself with all speed, and to take a poker in one hand and a blunderbuss in the other, and go down stairs to the street-door and ask, 'who's there?' This advice Mr. Wiggins took, without more delay, and strange to say when he got to the door and proposed the question so recommended by Mrs. Wiggins, there was no answer. Again, in a louder voice, and with a still bolder and more determinate tone, he said, 'who's there, I say? why don't you answer? Speak, or I'll blow your brains out.' Still there was no answer; Mr. Wiggins, therefore, being tired of asking questions to which he could get no reply, returned to his bed, and lay awake nearly an hour longer, listening with the closest attention, but in vain, for a repetition of the knocking. The strictest inquiry has been made to ascertain if possible who the miscreant was, that knocked at the door and ran away. Miss Wiggins has positively declared that, had she not been asleep at the time, it is very likely she should have gone into hysterics. Scarcely anything else is talked about in Wapping, and it forms a prominent topic of conversation in the coteries of Shadwell, Limehouse and Poplar. Our readers may rest assured that we shall spare neither pains nor expense to obtain all possible further information on this mysterious matter."

"Paragraphs of this nature are highly valuable to country readers, who thereby gain a knowledge of metropolitan manners, customs, and interests. But if such be the beauty of the general information, greater still is the importance of the local information, which, being supplied by a variety of correspondents, exhibits a corresponding variety of style; but all of them are eloquent—very eloquent.

"It seems to be taken for granted that no language is fit to make its appearance in the columns of a country newspaper, except it be adorned

and decorated with the most tawdry ornaments, like a chimney-sweeper on May-day. The editor of a country paper cannot be always present in every town, village, and hamlet, through which his paper circulates; but he has generally in every place some gratuitous correspondent,—not a penny-a-line man, but an amateur writer, who is more than paid for his trouble by seeing his own composition in print. Now if the editor be an elegant writer, delighting to see the English language attitudinising in his paper, like a Harlequin and Columbine in a plumber's shop-window, the correspondents of the paper will be ten times more eloquent than the editor himself.

“A baronet's son comes of age, and the baronet gives an entertainment on the occasion. The tenants and villagers dine and dance in the park; the baronet's friends dine and dance in the house; and here follows an account of the festivity:—

“On Wednesday last the village of Little Dribbleton was a scene of gaiety and festivity, reminding us of olden times, when baronial splendour and hospitality were at their meridian acme of glory. On that day the eldest son and heir of Sir Matthew Mugg, Bart. came of age and in order to commemorate so grand and imposing an epoch, the worthy baronet with his accustomed liberality resolved on giving a splendid fete. Most felicitously fortunately the fineness of the day was favourably propitious to the hilarity of the festival. As soon as the bright Phœbus showed his unclouded face over the eastern hills, the bells of the village church struck up a merry peal, a splendid silk flag bearing the armorial bearings of the Mugg family was elevated on the church steeple, which waved gracefully to the gentle breezes of Æolus, and all the lads and lasses of the village were seen tripping across the plain in their holiday attire. At one o'clock a dinner was set out in the park for the tenants and inhabitants of Little Dribbleton, which consisted of the most liberal supply of the good old English fare, roast beef and plum pudding, while rivers of home brewed ale were liberally supplied to wash down these substantial viands; and the condescension of Lady Mugg, who actually ate a piece of the plum pudding, provoked the loudest plaudits from the assembled multitude. When the guests had discussed their dinner, they proceeded to their sports in the park, which were ably managed and skilfully arranged under the highly talented superintendence of Mr. Hogsflesh, the landlord of the Crown and Pigstye. The sports consisted of donkey-racing, pig-hunting, jumping in sacks, grinning through a horse collar, running for a chemise, and such like manly sports, which were wont in the olden time to invigorate the frame, and to make Britain the pride and envy of surrounding nations. The racing of asinine quadrupeds afforded most excellent sport, and the prize, which consisted of half a Cheshire cheese, was carried off in triumph by young Joe Mumps, son of the celebrated cricket player of that name; and, singular it is to relate, but such is the fact, that Peggy Mumps, his sister, was victress in the chemise race, so that two prizes went into one family. Dancing also was provided for such as loved that graceful recreation, and many of the lads and lasses of Little Dribbleton were tripping it on the light fantastic toe till such time as the beautiful queen of night, in her silver car, the chaste Dian, sister to the bright-eyed Phœbus, began to climb the eastern heaven. The entertainment within the hall was on the most splendid and sumptuous scale, consisting of every delicacy that the season affords, and exhibiting a profusion of the most costly viands. The magnificent display of brilliant plate exceeded all that we ever read of in the Arabian Nights' Entertainments, or Gulliver's Travels. All the beauty and fashion of Little Dribbleton were present, and the *élite* of the vicinity

graced the festival with their company. Among the company present we observed the Rev. Oliver Whiteface, Mrs. Whiteface, and the nine Misses Whiteface, John Popkins, Esq., Mrs. and the seven Misses Popkins, *cum multis alios quæ nunc proscribere longam est.*"

"This is rather a long communication, but woe betide the editor if he dare to make the slightest alteration in it, or curtailment of it; should he correct the Latin quotation or omit it altogether, there would be such a philological controversy in the paper, that its columns, for the next six months, would look like "the Diversions of Purley." Should the editor, by any accident, omit the name of Popkins, or insert it as Mr. Popkins, the village apothecary, no individual, bearing the name of Popkins, would read his paper for the next twenty years; and, in all probability, such an insult would lead to the establishment of a rival paper on independent principles. The editor of the Blunderton Chronicle once lost fifteen subscribers and a constant correspondent, for presuming to substitute the word "moon" for "lunar orb," in an epistolary communication. It was in vain the editor protested that the alteration was made merely from want of room, and that he was aware of the great superiority of his correspondent's talents; the correspondent was inexorable, and would never forgive any man such a gross and scandalous crime, as daring to presume to correct his style. Many other pleasant matters of local intelligence grace the columns of a country newspaper, such as gigantic turnips, unseasonable cabbages, kittens with six legs, pigs with one ear, and, peradventure, some elaborate narrative of "certain diabolical miscreants, sacrilegiously breaking into the pantry of the parish clerk, and stealing thereout two cow-heels and a bushel of tripe, together with four pewter spoons and a bran new gridiron, which he had provided for his Sunday dinner."

"It is to be particularly remarked, that country thieves, in country newspapers, are all diabolical miscreants, therefore, all those who would avoid the reproach of diabolical miscreancy, would do well to avoid plundering pantries in the country. For my part I cannot see how a man can hold up his head again, after being called a diabolical miscreant in a country newspaper, it is enough to kill him for life."

In some of the articles the burlesque is comical to the extreme, but the veriest cynic who has disclaimed laughter as a vulgar propensity, must have his risible faculties forced into play on perusing the chief part of these characteristic sketches. It is the conviction of their strict resemblance to nature, though broadly caricatured, and the ludicrous position of men and things in circumstances dexterously placed for the peculiar occasion, which give these stories their force of colouring—and then the phraseology in which they are wrapped is so admirably adapted to the different scenes brought to the mind's eye. There is no coarseness of language in any part of the volume—on the contrary it is distinguished by purity of style and neatness of diction—and we have no doubt, which is presuming in no slight degree on its merits, that all its readers will cordially agree with us in this our unbiased opinion.

British Oology; being Illustrations of the Eggs of British Birds, with Figures of [those of] each species, as far as practicable, drawn and coloured from Nature: accompanied by descriptions of the materials and situation of their nests, number of eggs, &c. By W. C. Hewitson. In two monthly 8vo. numbers, each containing four lithographic prints. Newcastle-upon-Tyne and London. Nos. 1 to 20.

This beautiful work, of which the twentieth number has just appeared, far surpasses any other that has yet been published on eggs. The plates, which are drawings on stone by the author, coloured by Mr. J. Standish, of London, are admirably executed. It would be useless to criticise any of them, as all are equally well done, and are, in fact, perfect fac-similes of the originals. Where the eggs of any species are subject to variety, two, and even three, specimens are given: although this somewhat extends the work, yet the use of it is manifest; for in Lewin's "*Birds of Britain*," where only one egg of each species is given, it is often impossible to find out to what bird an unknown egg belongs, and the figures in that work are generally miserably executed, although both these and the figures of birds are excellent for the time at which they were published (1795—1800). We accordingly hailed with delight the appearance of a new work devoted exclusively to eggs.

The descriptions, though generally accurate and written in a pleasant style, are, in our opinion, too short. Mr. Loudon, in a notice of this work (*Mag. Nat. Hist.* Vol. V. p. 699), suggests that it would be "an excellent means of acquiring a mass of authentic facts on British Oology, were the author now to announce that he will publish, at the conclusion of the work, whatever facts, derived from personal observation, his subscribers may please to communicate unexpensively to him, if supplementary, or even controversial, to those already advanced in the work." But would it not be preferable to place such remarks as he may receive, under their proper heads in the body of the work? Supplements are always inconvenient for reference, and should, therefore, be avoided if possible.

There is one thing in this work against which we must enter our decided protest, and that is, the placing on the same plate the eggs of birds belonging—according to the modern system—to entirely distinct genera; as for instance, those of *Coccothraustes vulgaris* (Will.) and *Pyrrhula vulgaris* (Temm.) The eggs of *C. vulgaris* and *C. chloris** should of course have come on one plate, and those of *P. vulgaris* and *P. enucleator* on another. Let it be understood, however, that we do not object to having the eggs of birds of different genera on the same plate, provided each of those genera contains but one species, but only where there are two or more. We are really sorry that Mr. Hewitson should mar his beautiful and useful work by a fault which might so easily be avoided.† We must also remark that the author has adhered too much to the system of Linnæus and the venerable Dr. Latham (now in his ninety-fifth year), which, though a lofty and comprehensive arrangement, and well suited for rendering the acquirement of Natural History easy, and although it clearly proves the superior talents and genius of its founders, yet is not sufficiently exact for scientific purposes, and has

* The author most unaccountably keeps the Green Grosbeak in the genus *Prin-gilla*, while he very properly removes the Haw Grosbeak into *Coccothraustes*.

† Selby has, in some instances, fallen into the same error, in his splendid "*Illustrations of British Ornithology*;" but his masterly classification and excellent letter-press atone for all such defects.

long since been entirely superseded by the system of the great French Naturalist, which latter system has also now given place to that of Vigors and Swainson. Mr. Hewitson could not have done better than follow the arrangement adopted by Selby in his admirable "Illustrations of British Ornithology" in every particular, and even now we would advise him, when the work is completed, to arrange the plates in exactly the same order as the birds come, in the second edition of the last mentioned work. The "Oology" would then form a valuable addition to the "Illustrations" of Mr. Selby.

In fine, notwithstanding the defects of this work, we may safely recommend it to all those who wish to possess a complete work on British Oology; it is also an elegant work for the drawing-room, and we are happy to see the names of several ladies amongst the numerous subscribers, and also many of the first British Naturalists. We hope that Mr. Hewitson will figure the eggs of all the birds described by Selby, and even a few more, such as *Cypselus Alpinus*, *Regulus ignicapillus*, and *Motacilla neglecta* of Gould (Yellow-headed Wagtail). The "British Oology" was commenced five years ago, and, if continued at the same rate as hitherto, will not be completed for ten years to come.

The Naturalist's Library. Ornithology. Vol. IV. Part II. Game Birds, 32 plates engraved on steel by Lizars; with a portrait and biographical sketch of the life of Raffles. By Sir Wm. Jardine. Foolscap 8vo. London, Edinburgh, and Dublin.

This Volume—or rather part—is decidedly superior to the preceding Ornithological vols. of this work, both as regards the plates and the letter-press; it is prefaced by a beautiful portrait of Raffles, copied by permission from that which accompanies the interesting history of the "Life and public services of Sir Thomas Stamford Raffles." The life of this modern Sir Hans Sloane cannot fail to be of great interest to every British Naturalist, and is written in an easy flowing style.

On the title page is a beautiful vignette, consisting of a pair of Red Grouse; the female surrounded by a numerous family, some of which are perching on her back, and the male standing beside her with all the watchful solicitude of a good father. The descriptions are generally well written and interesting, particularly the long and full account of that noble bird the Wood Grouse—now, alas! extinct in Britain, and has been so for more than half a century. The plates are, for the most part, very fairly executed, especially that of the Wood Grouse, evidently taken from Bewick's wood-cut. The figure of the Black Grouse is also very good; altho' the tail is not so well finished as in Selby's plate, from which it is copied. The author speaks of the elegant Coromandel Quail, but unhappily the figure of this bird does not support his testimony, as it appears to our vision to be remarkably clumsy. It is, however, perhaps unfair to criticise any of the plates very severely, as they are generally good, and the volume is certainly remarkably cheap.

We understand that the next Ornithological volume of this work is to be on the Columbidae (Pigeon family), from the able pen of Mr. Selby, the well known author of the "Illustrations of British Ornithology."

Faculties of Birds: forming a vol. of the Lib. of Entertaining Knowledge. By James Rennie. 12mo. 1835.

This volume, like all others published under the superintendence of the Society for the Diffusion of Useful Knowledge, certainly does answer

the desired end of promoting useful knowledge, but then the knowledge imparted is too much pilfered from other authors. Thus free scope is allowed to this "Prince of Compilers," as the *Spectator* justly styles him, to draw upon sterling authors whose works are the product of years' patient observation and investigation in the field of Nature—such are the delightful volumes of Wilson, Audubon and Mudie, from the first of whom our author—compiler we meant—has made no scruple to take copious draughts, especially in the "Architecture of Birds," and which he has had the effrontery to cram in amongst his "conglomerates of dust and slime." We will now proceed to investigate the contents of this volume.

The first chapter is devoted to the "Vision of Birds." Rather than take a masterly and original view of this subject, as Mudie would have done, the Professor has chosen to string together a series of facts and anecdotes related by *other* authors, with here and there a remark which he would fain have us believe to be his own; they are, however, almost entirely culled from higher authorities. Yet at p. 8 we are actually startled by a "fact observed by J. R.;" but, alas! it is buried in an overwhelming mass of quotations.

Chap. II. is on the "Hearing of Birds." We must not omit to remark the lamentable want of Phrenology in this division of his subject. For instance, at p. 55 he says; "The anatomical structure and conformation which constitutes what is called a musical ear, remains hitherto unknown." We could hardly have supposed it possible that any person who has read—as we believe the Professor has—Dr. Gall's excellent work "Sur les Fonctions du Cerveau," would still retain the absurd opinion that the love of music depends on the anatomical structure of the ear. It of course depends on the comparative size of the innate organ of tune (see Mag. Nat. Hist. Vol. VII, p. 567). The remaining chapters treat of the other faculties, and in these the compiler, as usual, puts into requisition the theories and opinions of every Naturalist from the time of Aristotle to the present day, without coming to any decided conclusion of his own. This loose and unscientific method of proceeding may diffuse entertaining knowledge, but it certainly does not advance science. The "Natural History of Birds" of Mr. Mudie—in common with the other works of this delightful author—answers both these ends.

This, then, is the volume which—with the other two—we are told, "completes the subject of Ornithology." Completes it, forsooth! and in what manner? By stringing together a series of facts, anecdotes, theories, opinions and remarks of *other* authors who are thus robbed of their lawful property, merely to please the multitude. We are certain that were we informed of any one department of Ornithology on which this "literary Lestris" were going to write, we could furnish a review of it before we had seen it.

This person in all his compilations, seems to wish to show that he is a "well read man," by conspicuously placing the titles of books quoted in the margin, which is literary filled with them. We cannot help wondering why the Professor should not sometimes treat us with remarks of his own, as those which he *has* from time to time given to the world, are by no means devoid of interest; such as those in his "Architecture of Birds:" but as if not satisfied with having lodged them there, he must needs fall back into his old habits, and transfer them into his edition of that delightful work "Montague's Ornithological Dictionary."—We must now finish our review of this volume, and leave the Professor to do as he, in his profound wisdom, may think fit in his next "conglomerate."

Pompeii, with other Poems. By the Rev. S. Middleton, B. D. London : Smith, Elder, and Co. 1835.

In that part of "The Analyst" for April, dedicated to the Lecture delivered by the Author of this publication to the inhabitants of Cheltenham, we quoted so largely from the MS., it not having then appeared in print, that it will only be necessary for us now to speak of the work in its present shape as a published volume. Indeed, it appears that the dissemination of these poems, in their present form, is entirely owing to the enthusiastic approbation with which their recitation was received at the Literary and Philosophical Institution of Cheltenham, and the unanimous and strongly urged desire of the Members that they should be published, the Duchess of Gloucester granting her gracious permission to have them dedicated to her Royal Highness. The proceeds, be it observed to the Author's honour, are devoted to the use of the Cheltenham Female Orphan Asylum. Neither the approbation of the members of the Literary and Philosophical Institution, the august patronage of the Duchess of Gloucester, nor the charitable assignment of the produce of their funds to the Orphan Asylum, honourable as are such indications of the talent and charitable feeling of the Author, however, have not, nor ought to have, any power over the judgment of impartial criticism. This volume is the production of a scholar well versed in the writings of antiquity, and in that metrical harmony which is inculcated by a classical education, but the true inspiration of poetry is quite a different matter—we acknowledge, in most parts, it has many of the graces, but in few instances has it the *soul* of poetry—that essential qualification without which rhythm is a powerless adjunct. Yet is this work a performance of no despicable stamp, and if it cannot be compared with the mighty genius of Byron, it is evidently the production of a man of letters, possessing a fertile and lucid imagination. We have little doubt of the popularity of this volume; and we wish it every deserved success.

Gems of Literature; consisting of Original Tales, Dramatic Sketches, Poems, &c., by popular living authors. Inscribed to the Duchess of Kent. London: Longman and Co., 1835.

The contributors to this small volume are in general well known in the field of literature at the present day—amongst them are Miss Agnes Strickland, C. Marshall, the Countess of Blessington, Miss Emma Roberts, Miss Mitford, Miss Sarah Stickney, Miss M. A. Browne, Miss Jane Anne Porter, Dr. Ainslie, Capt. Marryatt, the Ettrick Shepherd, &c., &c. Each of these have contributed one, and in some instances, two papers, either in prose or poetry, from which it may be deduced that it contains many amusing and interesting articles. Altogether the miscellany is extremely creditable to the Editor, Mr. Revis, we learn, of Ludlow, in Salop, who to his editorial functions, has also distinguished himself as a contributor.

In this collection, which is evidently assorted with much care, there is scarcely an article which is not marked by some emanation of genius and talent. The tale, by the Editor, intitled "The Emigrants" is very interesting, and is written with considerable ability, but as literary and moral censors, we find much to condemn in the catastrophe. All imaginative writing should be devoted to the high purpose of morality—there should be no incentives held out to meanness and profligacy. A sensible, modest and discreet heroine, therefore, such as Catherine Morton is de-

scribed, has no sympathy with the good, whatever may have been her former sufferings, when she allies herself to a felon and a heartless libertine, because she had known and loved him in his days of youth and virtue. She might have assigned to him a weekly pittance to save him from the degrading habits which extreme poverty engenders—but there is a want of delicacy in a generous and high-minded female affiancing herself to a coarse, depraved, and ruthless vagabond, whatever might have been his warrantable pretensions before he had linked himself to vice and infamy. The good old mode of rewarding virtue and condemning vice is, we think, the best dénouement for all tales of the imagination; it is more in consonance with sound reason and moral feeling, and teaches a better lesson to the young and the thoughtless. The author must have had some misgivings on this point, too, for when he had completed this incongruous match, he is at a loss what to do with the happy pair, being perfectly aware that they had placed themselves out of the pale of respectable society, and had therefore no chance of spending a pleasant honey-moon in their native country—after their marriage, therefore, he starts them off, with all their kin, for America! Considered as a literary composition only, we must, however, acknowledge, that the story of “The Emigrants” is entitled to much commendation.

Lives and Portraits of the celebrated Women of all Countries. By the Duchess of Abrantes. London: Bull and Churton. 1835.

We have, here, a work which professes to present us with “the lives and portraits of the celebrated women of all countries;” but instead of being gratified with a portly volume in royal 8vo. closely printed in double columns, like Gorton’s admirable “Biographical Dictionary,” we are actually served with a nutshell—a paltry duodecimo of 366 pages of very fair-looking “brevier,” enlivened with the “sayings and doings” of no fewer than *sixteen* ladies of celebrity!!! Forming a high estimate of the fair, of their talents, their virtues, and genius—we open our eyes in astonishment, and cannot but marvel what strange apathy stole over the Duchesse d’Abrantes and her gallant coadjutor the Count Straszewics, when they wearied, yawned, and laid down their pens and their labours thus prematurely. Surely some envious Merlin—some wicked masculine elf,—jealous of the fame and glory of the feminine half of our species—stealthily distilled “poppy and mandragora” on the eye-lids of its literary advocates, and lulled them into a treacherous oblivion of duty. From the promising prospectus before us, we discover, *first*, that “women seemed doomed by the unjust silence of biographers to be forgotten” (ungrateful pedants, we blush for ye!); *second*, that the fair widow of Junot and the chivalrous Noble were “long engaged in preparing to set forth the claims of women to celebrity;” and *third*, that these writers intended to “devote their future labours to the biography of the celebrated women of ALL ages.” We furthermore find that the collection was to “present not only the moral characters of the most distinguished females,” but likewise “their portraits,” and that for this purpose “nearly all the public and private galleries of Europe” were to be thrown open to the artists selected. Indeed! and could the long labours of the assiduous defenders of the gentler sex,—could their patient researches into the history of woman, could the written and oral records of “all ages and countries” supply them with but *sixteen* females of *celebrity*? or is it possible that a paucity of materials for illustration occasioned the untimely decease of their project?—is it a fact that “all the public and private galleries of Europe”

are collectively enriched with no more than *sixteen*, eight pair of heads of illustrious dames, and that the heads, thus limned for the gaze of posterity, graced the shoulders of the following fair—"Maria Letizia Ramolini Bonaparte; Anna Zingha, Queen of Matamba; Lady Jane Gray; Dona Catalina de Erauso; Beatrice Cenci; Catherine the First, Queen of Russia; Ann Boleyn; Baroness de Stael Holstein; Charlotte Corday; Josephine Bonaparte; Mary the Catholic, Queen of England; Marina Mnischev; Christina, Queen of Sweden; Lady Mary Wortley Montagu; Marie Antoinette; Mary of Medicis."

We are at fault in conjecture; the final paragraph of the prospectus unriddles the riddle; the Duchess and her amiable ally have evidently not suffered from the narcotics of sorcery; they dreamt two or three scores of numbers, but, with shame be it spoken, the community was dead on the subject, and the publishers wound up their accounts with the *fourth*. To speak in a graver style, we are sorry to see this palpable lack of interest on the part of the public, because the work promised well, the design was liberal and praiseworthy, and the matter would have been fruitful in material for philosophical speculation on the moral attributes of women. That the Ladies are decidedly censurable for not supporting a work consecrated entirely to their honour, is an unquestionable certainty; but we fear—and with regret and surprise we affirm it—we fear that they are generally too indifferent to that which most intimately concerns the claims of their sex; few of them exhibit any thing like a warm and heart-stirring sentiment on the subject,—so few indeed, that while the majority were shopping at "Howell and James's," popping in at Soho Bazaar; *modestly* keeping a stall at a fancy fair; concerting new fashions; penning conundrums; consulting their milliner, and deciding the fate of a riband, or the tint of a flower, "The Lives of the celebrated Women of all Countries," came to a premature end at the age of *four months*. The Duchess wrote in vain, and the Count turned over parchments and papers, and worm-eaten MSS.—yet was fain to confess that "all is vanity and vexation of spirit!" and a publication undertaken with energy, executed with grace, feeling, and fidelity; correct in its sentiments, acute in remark, and picturesque in detail, was suffered to create disappointment to both Editor and Publisher. We trust that when—if ever—a similar work is projected, the Ladies will come honestly forward, and do themselves justice by a cheering encouragement of the same. The lithographic heads are in excellent style.

A History of British Fishes. By William Yarrall, F. L. S. Illustrated by wood cuts of all the species and numerous vignettes. Part II. London: John Van Voorst, Paternoster Row.

To the Ichthyologist the above work, of which the third number has but just made its appearance, must prove an agreeable and instructive offering. Perhaps no second department of natural history has been so partially investigated as that devoted to the inhabitants of the great deep, and yet not any department is in truth more productive of material for interesting analysis and remark. The appearance, organization and habits of fishes are equally worthy of observation, and their picturesque forms and beautiful colours have long rendered them favorite studies for the easel: among the Dutch and Flemish painters were many who particularly excelled in their delineation; and we have seen some *Chinese*

drawings of fish painted upon rice-paper with an accuracy, a delicacy and high finish not to be surpassed. Mr. Yarrell is, evidently well qualified for the task which he has undertaken, and he has come forward in an admirable spirit to enlarge the circle of knowledge respecting the natural history of fishes.

Mr. Yarrell's descriptions are elaborate without being tediously minute, and his remarks evince a scientific intimacy with his subject: the style in which they are conveyed is polished and agreeable, but probably a degree more of animation and familiarity would enhance the pleasure of a perusal by the general reader or the incipient Ichthyologist, to whom the track should be rendered as facile and alluring as possible.

The illustrations, of which there are twenty-one in the number before us, are given with a laudable regard to *detail*; they are cut in wood with taste and singular delicacy; indeed for a publication designed for wide circulation, where the impressions must consequently be *numerous*, it would, in our opinion, be advisable to aim at more *force*, in order to escape the peculiar disadvantage of worn and broken-up blocks before the requisite supply is obtained.* The necessity is obvious: Old Bowles, the printseller of the "*Black horse*," in Cornhill, the early employer of *Hogarth*, *Laquerre*, and a whole host of engravers, whose labours he purchased at little more than the cost of the copper on which they worked, was so sensible of the importance of "*depth*" that on the commencement of the process of *corrosion*, his usual cry was "*Bite it in deep!*" and the completion of the same was sure to produce an eager inquiry of "*Is it black?*" alluding to the state of the etching: from the latter circumstance, this hard-fisted chapman in art was, facetiously, designated "*Black Jack*," a *soubriquet* which adhered to him to the day of his death. Now we do not wish the artist to sacrifice every thing to depth for the sake of a multitude of impressions, but we caution him not to lose sight of the fact that minute and *very delicate* cuts are not susceptible of the "*wear and tear*" of any but a very limited demand, and that his professional reputation may suffer injury in consequence of an oversight.

The late Lord de Tabley, that munificent patron of British Art, some years back, projected a magnificent series of illustrations of British Ichthyology, to be engraved in the line manner from original drawings by the noble amateur himself; the descriptions were to have emanated from the talented pen of W. Jerdan, Esq.; but the lamented indisposition and subsequent demise of his Lordship, we believe, unfortunately suspended the publication.

A History and Description of the late Houses of Parliament, and ancient Palatial Edifices of Westminster. By John Britton and Edward W. Brayley. Parts IV. and V. London: John Weale, High Holborn.

By an Address inserted in the first of these numbers, it seems that the spirited authors have lately obtained access to some important documents relating to the ancient Palace of Westminster; and as extensive researches are now making among the national archives for further authentic materials, they are anxious to avail themselves of such opportunities, in the hope of giving additional value and increased interest to the work. The quantity of letter-press in these two numbers is in

* The plates for the *Annuals* are, invariably, wrought much deeper than is acceptable to the judgment of the connoisseur

consequence much diminished, but an assurance is held out that the promised portion of literary matter will be strictly conceded as the volume advances to completion. What is given, however, is extremely interesting, having been derived almost wholly from the original documents belonging to the Office of the King's Remembrancer of the Exchequer, and from the Chancellor's Roll of the 12th of King Edward I. in the British Museum.

The following instances (among others) of infringement on the privileges of the palace, in the reign of Edward II. with the awards made in each case, are derived from the *Placita* and other rolls.

"In the King's second year, Alice, the daughter of Nicholas le Ken, was summoned to answer the complaint of Walter de Bedewynde, the Remembrancer of the Exchequer, who had accused her of reviling him, by calling him "a thief, seducer, and other opprobrious names," in the *great hall* at Westminster, and elsewhere within the King's Palace there, and which she denied. A jury of the court, and of persons dwelling near the palace, was consequently impannelled; and having found that the insult was given "upon the *King's Bridge* of his palace at Westminster," they awarded damages to the amount of forty pounds.

"In the sixth year of Edward II., a court of the palace for pleas of the Crown—"Placita aulæ domini Regis de Corona"—was held at Westminster, before Hugh de Audley, steward and marshal of the king's household, when John de Redinges was arraigned for counterfeiting the king's privy seal; but he alleged that he had purchased it of Edmund de Malo Lacu, the former steward, (who was also before the court,) for forty talents of gold, and judgment was in consequence given against the latter.*

"On the eve of Ascension day, in the 8th of Edward II. (anno 1315,) Thomas de Gerdestan, Archdeacon of Norfolk, and one of his officers, were impleaded before the king and his council, then sitting in parliament at Westminster, for that they, on the eighth of March preceding,—the king being then in his palace and holding his parliament,—did cite Joan de Barr, Countess of Warenne, she being then in attendance on the queen consort in the *chapel* of the said palace, to appear in the church of St. Nicholas of Braheden, to make answer to Maud de Nerford, in a cause of divorce between her and John Earl of Warenne. The fact having been proved, the archdeacon and his officer were committed to the Tower.†"

The embellishments in No. 4 are plans of the south half of the Crypt, and of the northern half of St. Stephen's Chapel, drawn by Billings, and engraved by Bellin; View of the Long Gallery, in ruins, looking north, drawn and engraved by T. Clark; View of the South Walk of the Cloisters, drawn by Billings and engraved by Clark; and View of the House of Lords, &c. after the fire, drawn by Billings, and engraved by Woolnoth:—those in No. 5 are—St. Stephen's Chapel, Interior, looking east, drawn by Billings, and engraved by Le Keux; New House of Lords, drawn by Billings, and engraved by Clark; New House of Commons, drawn by Billings, and engraved by Taylor.

With the exception of the diminution of the letter-press, which is sufficiently explained, and cannot be deemed an excuse for complaint, this work fully maintains its high ground in all its departments, and we see nothing to justify the slightest depreciating observation. When finished, it will be a most interesting and valuable history.

* Vide "Additional Manuscripts" in the British Museum, Ayscough's Catalogue, No. 4,486, fo. 52.

† Vide Ryley's "Placita Parliamentaria," p. 543; and "Cal. Rot. Patentium," p. 75, 6: edit. 1802.

Arboretum Britannicum; or the Hardy Trees of Britain, Native and Foreign, pictorially and botanically delineated, &c. &c. by J. C. Loudon, F. L. S., &c. No. 5. May, 1835. London: Longman and Co.

The Magazine of Natural History, and Journal of Zoology, Botany, Mineralogy, Geology, and Meteorology. May, 1835.

The Gardener's Magazine. May, 1835.

The Architectural Magazine, and Journal of Improvement in Architecture, Building, and Furnishing, &c. May, 1835. Conducted by J. C. Loudon, F. L. S., &c. London: Longman and Co.

These monthly publications have lost none of their usefulness and value,—indeed, we are disposed to think that each succeeding number lays claim to some new attraction. In the *Arboretum Britannicum*, we observe a decided improvement in the execution of the plates. The History and Geography of Trees in the British Islands is continued, with some information and anecdotes of an interesting character.—The *Magazine of Natural History*, &c. contains some intelligent papers written with considerable tact.—In the *Gardener's Magazine* are various communications on the gardening of Belgium and France, which are well worthy of perusal; and a series of designs for laying out and planting Flower Gardens, merit particular attention.—The *Architectural Magazine* is rich in its original articles. Amongst others is an able paper on the elements and principles of Gothic Architecture, by Picton, the Architect, embellished with many well-executed wood-cuts.

From the *Arboretum Britannicum* we select the following interesting article:—"John Bartram, one of the most distinguished of American botanists, was born in Chester County, Pennsylvania, in 1701. His grandfather, of the same name, accompanied William Penn to this country in 1682. John Bartram was a simple farmer; he cultivated the ground for subsistence, while he indulged an insatiable desire for botany. He was self-taught in that science, and in the rudiments of the learned languages, and medicine and surgery. So great, in the end, was his proficiency in his favourite pursuit, that Linnæus pronounced him 'the greatest natural botanist in the world.' He made excursions, in the intervals of agricultural labour, to Florida and Canada, herborising with intense zeal and delight. At the age of 70, he performed a journey to East Florida, to explore its natural productions; at a period, too, when the toils and dangers of such an expedition far exceeded those of any similar one which could be undertaken at the present time, within the limits of the United States. He first formed a botanic garden in America, for the cultivation of American plants as well as exotics. This garden, which is situated on the banks of the Schuylkill, a few miles from Philadelphia, still bears his name. He contributed much to the gardens of Europe, and corresponded with the most distinguished naturalists of that quarter of the globe. Several foreign societies and academies bestowed their honours upon him, and published communications from him in their *Transactions*. John Bartram died in 1777, in the 76th year of his age. At the time of his death he held the office of American botanist to George III. of England. He was amiable and charitable, and of the strictest probity and temperance. (*Encyc. Amer.*)"

LITERARY AND SCIENTIFIC.

MECHANICS' INSTITUTION, BIRMINGHAM.

At this Institution a course of four lectures was commenced on the fourteenth of May, by Mr. Wallace, "On the mental faculties of man," exemplified by various natural and experimental illustrations. The first lecture had a reference principally to sensations, as the primary source of intellectual power; but as the inferior animals possess this faculty in a degree equal, or superior to man himself, the use of language was referred to as his distinguishing characteristic,—by which he was enabled to reason, and thus have dominion over the inferior animals. An extract was here read from a paper in the first volume of the "Edinburgh Philosophical Journal," page 172, in which is contained an account of a boy born deaf and blind, and who, being destitute both of a language of words and a language of signs, was consequently incapable of exercising the reasoning faculty at all. The habits of the inferior animals were exemplified by animal architecture,—as for instance, the nests of birds, the abodes of ants and of bees, and the works of aquatic animals in the formation of such substances as coral. These were stated to be always similar in similar animals, and consequently always of one *particular* nature in the same animals;—while the architecture, and fabrications of man, were altogether *arbitrary*, and even dissimilar at various times, arising out of the arbitrary nature of language itself.

In the second lecture, the construction of the human eye was explained, and the commonly received opinion controverted, that the inverted pictures upon the retina are the final causes of sensation within the eye. In place of this the lecturer considered the base of the optic nerve as the true seat of vision. The modifications of structure in various eyes, and of conformation under various circumstances, were illustrated by a hollow cube, and a hollow hemisphere of glass, filled with water, by which it was shewn that the surfaces of all transparent media act in pairs, and that they are acted upon by equal forces towards their centre, (in the transmission of light), by which a central optical plane is produced, where the images of objects are uniformly suspended, and from which they are transmitted to the eye. This being the case, the conflicting opinions of authors upon the subject of the varied refraction of light, by the employment of denser or rarer mediums, were shewn to result from fallacies originating in the modifications of the surfaces of hollow vessels, when filled with them. This was explained to originate in the varied specific gravities of these mediums, tending to curve the surfaces of the vessels,—as well as the upper surface of the liquid or solid employed,—in greater or less degrees; and even in the formation of a foreign atmosphere, produced by the employment of such light bodies as ether and phosphorus. Another cause of fallacy was said to arise also from the nature of the eye itself, which, by rendering those parts of the vessel employed, which are nearest the eye, greater (apparently) than those which are more removed from it,—according to the well known principles of perspective,—creates a difference in the measure of the central plane, when that is compared with either of the surfaces producing it.

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PREFERMENTS, MARRIAGES, &c.

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MARRIAGES.

In Dublin, the Rev. G. Mac Neill, of Colonsay, Argyll, nephew of the Earl of Granard, to Cecilia, daughter of the late C. Maughan, Esq. of Harrington Hall, Yorkshire, and Londonderry.—At the Catholic Chapel, and afterwards at All Saints', Mr. John Durieux, Professor of Languages, to Mary Christiana, only daughter of Mr. Chapman, Worcester.—At Trinity Church, Brompton, George Sheward, Esq. of Upton-upon-Severn, Member of the Royal College of Surgeons, in London, to Elizabeth, daughter of Mr. William Mathews, of Brompton, Middlesex.—At St. James's Church, London, George Clive, Esq. youngest son of E. B. Clive, Esq. of Whitfield, Herefordshire, M. P. to Ann Sybella, second daughter of Sir Thomas Farquhar, Bart., of St. James's-street, London.—At the Abbey Church, Great Malvern, by the Rev. Dr. Card, Andrew Morison, Esq. Surgeon, R. N. to Margaret Wallace, eldest daughter of the late Colonel

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the Hon. Amalie Caroline Pery, third daughter of the late Viscount Glentworth, and grand-daughter of the Earl of Limerick.—At the Friends' Meeting-house, Gloucester, P. N. Edwards, of Bryn Lloyd, Radnorshire, to Rebecca, daughter of John Shipley, of Gloucester; also, at the same time and place, J. Sessions, of the Westgate-street, to Eliza, youngest daughter of the said John Shipley.

BIRTH.

May 14th, at the Dowager Countess of Coventry's, Streatham, Surry, the Hon. Mrs. W. Coventry, of a daughter, still born.

DIED.

Suddenly, at Kirby Mallory, Captain Russell, son of Lord William Russell, and nephew to the Duke of Bedford.—At Sidmouth, Retired Rear-Admiral George White, aged 74.—At Blackheath, the Hon. Sir Arthur Kaye Legge, K. C. B. Admiral of the Blue, in the 69th year of his age.—At Clifton, aged 74, Joseph Seymour Biscoe, Esq.—At Dudley, in the 66th year of his age, T. Brettell, Esq. of the Tiled House, Kingswinford.—At Haylands, Ryde, Isle of Wight, Walter Lock, Esq. Vice-Admiral of the White, in his 79th year.—At Strawberry Hill Cottage, Twickenham, John Bull, Esq. Clerk of the Journals of the House of Commons, in his 59th year.—At Madeira, Elizabeth, only daughter of Lady Arthur Somerset, and niece to the Duke of

Beaufort and the Earl of Falmouth, in her 23th year.—At Howth Castle, Almerica, fourth daughter of the Earl and Countess of Howth.—At Kidderminster, aged 82, Joseph Crane, Esq. for 61 years Surgeon in that borough.—At Cheltenham, Anna, wife of the Rev. Richard Dickson, and sister to Sir W. Chatterton, M. P.—At York Gate, Regent's Park, Captain Henry Kater, F. R. S. a gentleman of very high scientific attainments.—At St. Sidwell's, Exeter, after a lingering illness, the Rev. George Sercombe Luke, B. A. of Queen's College, Oxford, aged 40.—At Presteign, aged 46, Captain Matthew Higgins, Adjutant to the Radnorshire Militia.—At Montpellier Parade, in Cheltenham, Thomas Gray, Esq. in his 63rd year.—At Illington, near Uxbridge, in the 40th year of her age, Alice, the wife of Luke Minshall, Esq. Solicitor, Bromsgrove.—At Woolescote Hall, near Stourbridge, Mrs. Brettell, of Barbourne Terrace, near Worcester, relict of R. Brettell, Esq. formerly of Foster-lane, London.—At Marl Hill Cottage, Carlsbrook, Isle of Wight, Captain Charles Blomer, formerly of Pershore, Worcestershire.—After a long illness, in his 72nd year, Jeremiah Hawkins, Esq. of the Haw, Gloucestershire: a gentleman well known in that and the adjacent counties.—In Dawson-street, Dublin, after a long and painful illness, which she bore with that cheerfulness and pious resignation which might have been expected from her writings and her character, Mrs. Hemans.

METEOROLOGICAL REPORT.

April	Barometer.		Thermometer		Remarks.		
	Morn.	Even.	Max.	Min.	Day.	Night.	Wind.
1	29.268	29.255	61	48	Fine, brisk wind	Fine	S.
2	29.230	29.135	62	50	Fine, shower, thunder	Showers	S.
3	29.185	29.316	57.5	42.5	Clds, showers, and d. th.	Cloudy	S. E.
4	29.490	29.500	50	47	Cloudy, light rain	Cloudy	S. E.
5	29.563	29.680	50.5	47	Cloudy, mizzling rain	Cloudy	S.
6	29.708	29.735	58	47	Fine, sun, and clouds	Fine	S.
7	29.745	29.710	58	46	Fine, sun, and clouds	Fine	S.
8	29.685	29.615	60.5	45.5	Sun, fine, windy	Fine	S.
9	29.580	29.510	58	50	Clouds and wind	Fine	W. high
10	29.600	29.695	56	40	Fine, cold wind	Fine	N. W.
11	29.740	29.730	50	39.5	Fine, clouds, and sun	Fine	N. E.
12	29.670	29.579	58	40	Sun, very fine	Fine	S. E.
13	29.562	29.530	58	43	Fine, light clouds	Fine	S.
14	29.530	29.430	61	41	Fine, sun, hazy	Fine	S.
15	29.305		55	30.5	Fine, cold afternoon	Fine and frost	N. W.
16	29.605	29.595	47	28.1	Fine, sun, very cold	Very sh. frost	N.
17	29.605	29.600	42	31.5	Fine, very cold	Little showers	N. E.
18	29.460	29.480	50	37.5	Cloudy, fine, little rain	Rain	N. W.
19	29.680	29.800	51	42	Cloudy, fine, and rain	Cloudy, fine	Calm W.
20	29.835	29.840	54	45.5	Fine, clouds, and sun	Cloudy, fine	Calm
21	29.830	29.805	57	47.5	Fine, clouds, and sun	Fine	W. N. W.
22	29.850	29.895	58	42.5	Fine, cool wind	Cloudy, fine	N. W.
23	29.870	29.820	56.5	46	Cloudy, cold	Cloudy, fine	N. W.
24	29.805	29.660	57	42.5	Fine, sun, and cloud	Fine	N. W.
25	29.580	29.235	53	37	Fine, sun, and cloud	Fine	N.
26	29.168	29.046	47	30	Fine, sun, lt. sn. showers	Fine, sh. frost	N. E.
27	29.000	29.117	49.5	34	Fine, sun, and cloud	Fine	N. E. calm
28	29.206	29.285	48.5	36	Fine, sun, and cloud	Fine	N. E.
29	29.195	29.085	50	41.5	Fine, cloud, high wind	Heavy rain	N. E. high
30	28.945	29.000	44	42	Rain	Rain	N. E.
Mean Max. 54.0			41.3 mean Min.				

Malvern, May, 1835.

25 NOV 1916



THE
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No. X.

A Comparison between the Climates of Great Malvern and London—Lionel Lackland (continued from p. 171)—Lines to a Lady—On making the English Generic Names of Birds correspond to the Latin ones—Lectures on Geology, in Illustration of the Strata in the Neighbourhood of Birmingham, by Ogier Ward, M. D.—Stanzas: God Bless Thee—On the Characteristics of Trees, by Edwin Lees, Curator of the Worcestershire Natural History Society—Critical Notices of New Publications—Literary and Scientific—New Patent: Reclining Cylinder Bedstead—List of New Publications—Literary Intelligence—Marriages, Births, and Deaths—Meteorological Report.

ERRATA.

Page 238, line 12, and p. 239, l. 33, for "Tringilla" and "Tringillidæ," read "Fringilla" and "Fringillidæ."

Page 239, l. 5 from the bottom, for "Grey Snowflake, Nyctea cinerea, mihi," read "Great Toad-eater" only.

15 NOV 1916

THE
ANALYST;

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AND THE FINE ARTS.

No. XII.



JULY, 1835.

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TO CORRESPONDENTS.

We have been most reluctantly compelled to omit, for want of space, this month, several highly interesting articles; amongst others, are "Aphorisms on the Frontal Sinuses, and the extent of their interference with Phrenological observation." A valuable Paper "On the Practicability of Navigating the River Huallaga, with Notes on the productions, &c., of Maynas Peru, by A. Mathews, A. L. S.," (communicated by J. C. Loudon, Esq.) An apology is due to our kind and talented Correspondents, from the same cause, for the omission of the Critical Notices of "Brockedon's Road Book," "Mrs. Trollope's Tour thro' Germany," "The Moral of Flowers," "The Natural History and Antiquities of Selburn," "Beckstein's Cage Birds," and other Works.

The Notice of the Second Exhibition of Modern Paintings and Sculpture, at the Athenæum, Worcester, has obliged us to postpone the insertion of several Reviews of Illustrated Works. In future, we shall devote more space to the "Fine Arts," and have less frequent occasion to regret the insertion of Notices of works of merit.

In answer to the communications so frequently addressed to us, complaining that the reply to applications for the Analyst, through the medium of the London Booksellers, is constantly "out of print," we beg to state, that a supply of the back Numbers of the Work may be obtained from the Publishers, Messrs. Simpkin, Marshall, London.

ADDRESS

TO THE

SUBSCRIBERS AND PATRONS OF THE ANALYST.

HAVING earnestly embarked in the publication of "THE ANALYST," for the purpose of devoting it to the cultivation of a taste for Literature, Science, and the Fine Arts, in the Midland District, a very talented and influential portion of England, we entertained a reasonable hope of being enabled to render it a channel for the outpourings of local genius in every intellectual department. With this view we submitted ourselves to the impartial judgment of many of the most eminent literary and scientific characters in the vicinity, and the projected periodical was published in its present monthly form. On the conclusion of the year, however, our literary friends have suggested an alteration in the plan of the Work, with such cogent and irresistible reasons for its adoption, that we hesitate not to avail ourselves of the change so strongly recommended.

We therefore take leave to announce that this Publication will in future exhibit a more decided character, and will henceforth be a *Quarterly* instead of a *Monthly* Periodical—exclusively devoted to Scientific Papers—to an Analytical Review of Works in the several departments of Science and general Literature—to the Fine Arts—and to a succinct account of the proceedings of all Scientific Institutions in the Provinces—

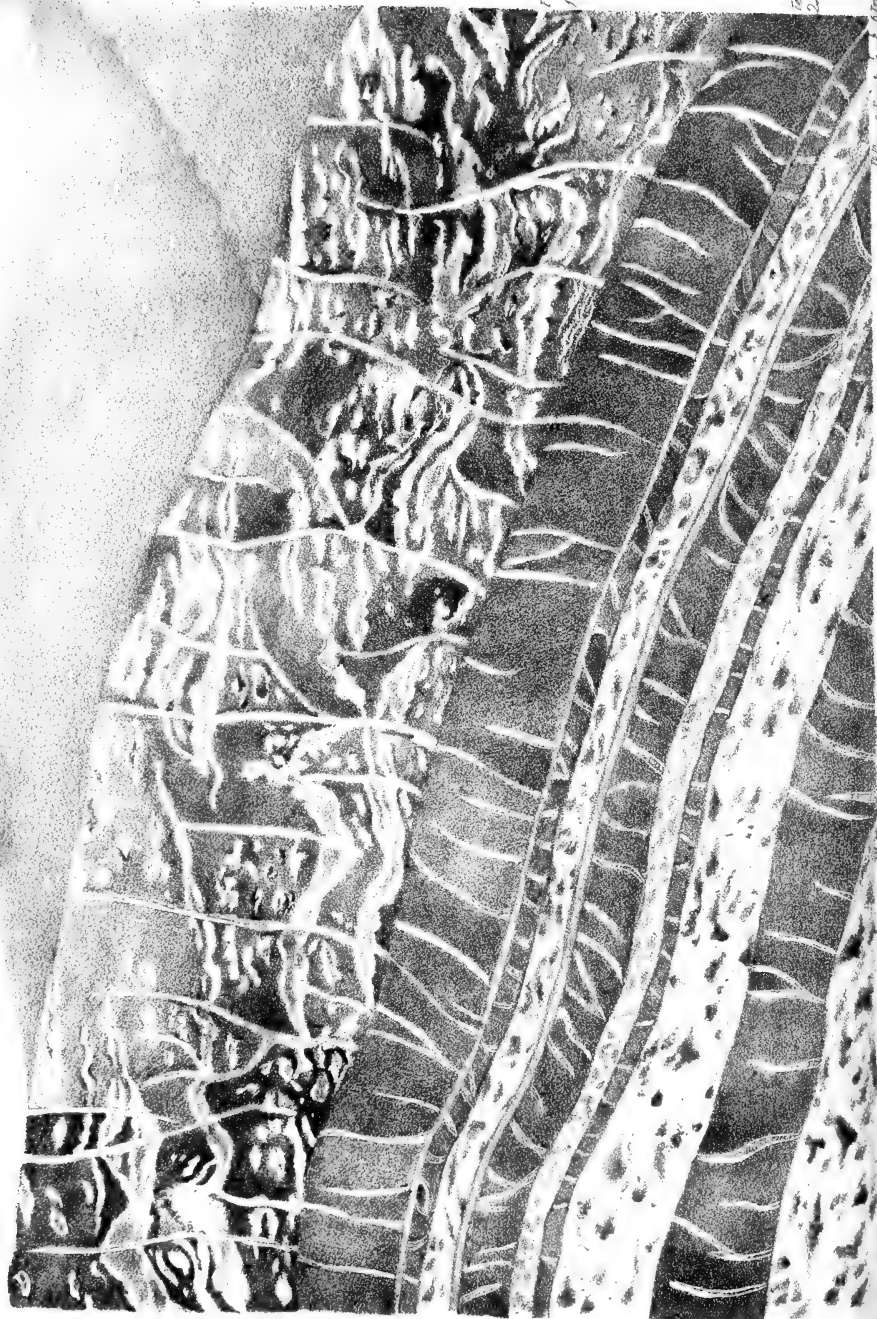
embracing a much wider range than has hitherto been adopted. The annual charge for the volume will be reduced from eighteen to fourteen shillings, notwithstanding each number will contain at least 160 pages.

We trust that the alteration we propose to carry into execution, will meet with the concurrence of our Subscribers generally, for we should lament even a single instance of disapproval of the change—our object being to propitiate, and not to diminish the kind patronage extended to our literary undertaking.

ANALYST OFFICE, JUNE 29, 1835.



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ON THE
SALT SPRINGS OF WORCESTERSHIRE.*

BY CHARLES HASTINGS, M. D., F. G. S.

AMONG the various objects which engage the attention of the members of the Worcestershire Natural History Society, none seem more important than those which relate to the local history of the county, and accordingly one of the chief purposes for which this Society was formed, was to investigate the Natural History of the county, and to point out its relation to the comforts, the health, the wealth, and the commercial resources of the community.

The brine springs of the county, in this point of view, are more especially an object of great interest. They are of high antiquity, as being sources of much personal wealth to individuals, and of great convenience to the inhabitants of this county generally. The production of salt, moreover, has been of importance to governments, as from the earliest times it has been made to yield to them a revenue by taxation.

I need not here dwell on the manifest reflection that salt is of indispensable utility to man, and that its existence in such rich abundance in the natural world is one of those innumerable proofs of design with which the creation teems. The waters of the ocean yield salt abundantly by evaporation; but the distance of the sea from many localities in which man has pitched his tent, and formed communities of living beings, would manifestly be a great obstacle to the general diffusion of this necessary commodity, if Nature, ever kind, had not buried this treasure also, in the rich storehouse of many of man's possessions—the earth. To this storehouse the intelligence with which he is endowed enables him to have access, and to convert the materials there found to his advantage and profit.

Salt is found in the earth in a solid state, and is hence called rock-salt. The instances are numerous, and the study of the geological connections of salt with its associated rocks, will amply repay any one who takes an interest in the works of nature. Gypsum, or sulphate of lime, and rock-salt are the most valuable minerals found in the secondary strata, and it is from these that most of the important salt springs issue. Now what are the known relations between the production of salt, and the mineral strata in this county?

On the western boundary of Worcestershire, we have the older rocks, viz. the primitive chain of Malvern and the transition

* A Lecture delivered before the members of the Worcestershire Natural History Society.

rocks of Cradley, Martley, and Abberley; then again on its northern limit, a similar class of rocks is found, and we have also the Coal measures at Dudley; the Trap rocks of the Clent Hills, the Basalt at Rowley, and the Quartz rock at Bromsgrove.* But the formation which most extensively prevails, and of which the county generally may be described as consisting, is the *Red Marl*, or *New Red Sandstone*, which geologists consider as having been formed by the breaking up and disintegration of the older rocks before mentioned, and their subsequent deposition from the waters of the ocean.

In England, the Red Marl or New Red Sandstone is a very extensive deposit, stretching with very little interruption from the northern bank of the Tees, in Durham, to the southern coast of Devonshire. Its texture is very various. It appears sometimes as a reddish marl or clay, sometimes as a sandstone; sometimes the clay or sandstone are interstratified, or pass the one into the other; and it will further appear that it is associated with, or contains beds of a conglomerate, consisting of masses of different rocks, cemented by marl or sand. When this deposit appears as a sandstone, its characters differ greatly in different places; it is occasionally calcareous, and sometimes of a slaty texture. Above all, this extensive deposit is remarkable for containing masses or beds of gypsum; and the great rock-salt formation of England occurs within it, or is subordinate to it. In some places the strata of coal dip below it. Generally speaking, the red marl containing gypsum is found in the higher, the sandstone in the central, and the conglomerate in the lower portions of this deposit.†

In Worcestershire, this formation begins at the very northern boundary of the county, and spreads itself over the whole of the district,—so that setting out from Stourbridge, and walking directly south to Longdon Heath, below Upton, we are continually passing over Red Marl and New Red Sandstone, for the most part hidden from our view by the beds of gravel which abound so extensively in this line of country. In many parts, however, the sandstone is exposed, and forms pleasing rising eminences, and in some situations there are more elevated strata, as in the sandstone hills about Bewdley and Kidderminster. Mr. Murchison has lately read a paper to the Geological Society, in which he takes a view of the New Red Sandstone which occurs in parts of Salop, Stafford, and Worcester; and as the formations which have usually been classed under this term present various appearances, he proposes to divide the group into distinct subformations, adopting the following subdivisions:—

1st. Red and Green Marl.

2nd. Sandstone and Conglomerates.

* A complete description of these Transition Rocks, and of many organic remains found in them, not previously known to naturalists, will be given by Mr. Murchison in his splendid work on the subject, which will shortly be published.

† See Conybeare and Phillips's *Geology*, p. 279.

3rd. Calcareous Conglomerates.

4th. Lower Red Sandstone.

I proceed now to point out the different parts of Worcestershire where these subdivisions of the New Red Sandstone formation may be observed, and I shall begin with the lowest of the series, the *Lower Red Sandstone*. We have this shewn where the sandstone flanks the Malvern, Berrow, and Abberley Hills. It has the character of a conglomerate, in which are imbedded portions of Quartz and the older Trap rocks. Rosebury Hill, near Knightsford Bridge, is a rock of this kind, which is very characteristic. These Red Sandstone Conglomerates in the neighbourhood of the transition rocks, are, therefore, the lowest of the deposited beds of the New Red Sandstone in this county.

2ndly. *Calcareous Conglomerates*. There is a well developed calcareous conglomerate zone, lying above that just described, and which is largely and beautifully exposed on the eastern faces of the Clent Hills. The chief imbedded fragments are of limestone, and they are largely burnt for lime to the east of the Lickey and Clent Hills, where they are of irregular thicknesses. These strata are repeated between Kidderminster and Bridgnorth.

3rd. *Red Sandstone and Conglomerates*. In parts of Worcestershire where the pure sandy beds prevail, particularly north and south of Kidderminster and about Bewdley, there are large districts of rye land, which gives to the agriculture in these situations a peculiarity that must strike the most casual observer. These beds, which are in some parts very thick, may be emphatically called Red Sandstone. We may observe sections of them near Kidderminster and Bewdley, at Hartlebury, near Ombersley, Witley, and Martley. The direction of this division of the sandstone formation is south-westerly.

4th. The *Red and Green Marls* are met with in another division of the county, commencing to the north of Droitwich, and continuing in a line to Worcester, to the Old Hills, to Severn Stoke, and to Upton; thus running nearly parallel to the former subdivision.

Here then we come to the upper group of the great system of newer Red Sandstone, which more properly may be considered as red marl; associated with which is the bed of rock-salt, extending beneath it, and the brine springs in connexion with it. The prevailing rock around Droitwich appears to be a fine grained calcareo-argillaceous marl, but it is so ill laid bare and is so little exposed, that the composition of the strata generally is not readily ascertained. Sections of it may, however, be observed at the entrance to Droitwich from Worcester; immediately out of Droitwich on the Hanbury road; near the turnpike on the road to Kidderminster; at Dodderhill; and at Brier Mill, near Westwood. It varies greatly in all these places—1st, from

the sandstone rock at Rosebury—2ndly, from that of the Clent Hills, and 3rdly, from the sandstone of Ombersley, Martley, &c.

It is of consequence to understand the situation of the town of Droitwich, in relation to the Red Marl formation in its immediate vicinity. The borough of Droitwich is built in the very lowest part of a vale which runs nearly east and west for about a mile and a half, viz.—from Hanbury Wharf to some little distance beyond the western end of the borough. The valley then takes a south-westerly course, through Salwarp and near Westwood: the high grounds of the latter place rising on its western side, and the line of country through which the road passes from Worcester to Droitwich forming its eastern boundary. The valley from thence is continued to Hawford Bridge, and soon after it terminates at the bank of the Severn. Through this vale runs a small river called the Salwarp, which evidently takes its name from the Latin word *Sal*—Salt. This river, commencing at Bromsgrove Lickey, takes a southerly direction, passing by Stoke Prior and near Rashford, soon after which it enters the valley of Droitwich, about half a mile to the east of the town. The stream then runs westerly, and passes directly by the town, at the western extremity of which its course is altered, and it thence pursues nearly a south-westerly direction, through the bottom of the valley before described, until it empties itself, passing under Hawford Bridge, into the Severn near to Bevere. Advantage of this valley has also been taken by art to cut through it the Worcester and Droitwich canal, for the purpose of conveying salt to Worcester; the canal following nearly the course which nature has pursued in carrying the river into the Severn. The river has, throughout its course, a gravelly bed, and the pebbles are principally of quartz.

It may be worth while to point out that rivers or rivulets passing through a country, are often connected with vallies or concavities, which they seem once to have formed or occupied. This may be the case with the small rivulet which now runs through the valley of Droitwich. A great lake may formerly have filled the valley, and the gravel, sand, clay, and loam which are now found in every part of it, may have been mechanical deposits from water, the action of which may have rolled and rounded the pebbles. This circumstance it is of importance to keep in view, because it has a relation to the mode by which the salt is by some geologists supposed to have been produced.

Examples, on a large scale, of such concavities as the valley of Droitwich are frequently found. They are met with in the course of the Rhine, the Rhone, the Elbe, and the Danube. The Vallais, and the concavity in which the lake of Geneva is situated, shew this appearance in the line of the Rhone; the lake of Constance in that of the Rhine. They occur in Scotland in Dumfriesshire, Perthshire, and Aberdeenshire. The

Tay, at Perth, before issuing from the narrow pass between the hills of Kinnoul and Moncrief, affords an instance.

The necessary consequence resulting from the town of Droitwich being built in a valley is, that from whatever road you enter it, you must descend. The approach from the south is by the Worcester road, and when within a quarter of a mile of Droitwich, after having travelled for some miles on gravel, you arrive at an eminence of Red Marl, which is exposed to view. This eminence is about eighty feet higher than the bed of the canal, which runs through the town; and the high, marly ground is continued to the east and to the west, forming a line of low hills to the south of the town. Descending by a gentle slope, you arrive in the valley, where the houses are built on the Salwarp, the small stream before noticed, which springs from Bromsgrove Lickey, having all the way a gravelly bed. If when in Droitwich you look to the north, you see rising ground springing up rather precipitately. This is Dodderhill, which is close to Droitwich; the church is built upon marl, resembling that which has been noticed as occurring to the south of the town, and there is a good section of it exposed to view. Dodderhill is, however, still higher than the marly banks to the south. It is nearly 100 feet above the canal, and this high ground is continued easterly and westerly. Passing out of Droitwich on the east side by the Hanbury road, you do not so immediately ascend; but at the distance of less than a mile from the town, at Hanbury Wharf, the ground is seventy feet higher than the bed of the canal, and near this place, on the side of the road, there is a section of marl. To the west, towards Kidderminster, the ground rises in about the same ratio as towards the east, but not so abruptly as to the south and north; and here also, at the extremity of the town, are sections of red marl with green veins. Droitwich, then, may be considered as lying at least seventy feet lower than any of the ground in its immediate vicinity.

In every part of the county that I have been just describing, even near Dodderhill, there are gravel beds, varying very much in thickness; and the pebbles and stones contained in these beds are chiefly disintegrations from the older rocks, consisting of Quartz, Sienite, Granite, Trap, Old Red Sandstone, &c. I have not yet heard of any fossil bones of the Mammoth and Hippopotamus having been discovered in them.

Lias.—At the part of the Red Marl formation we have been now considering, and where the salt is principally found, we approach a different geological formation. This is the Lias Limestone, which is higher in the series of rocks than the sandstone formation. It extends in this county from near Bentley and Hanbury, in a line nearly southwards, to the junction of Worcestershire with Gloucestershire, near Tewkesbury. It is of importance to bear in mind, that wherever salt has been found in this county, it has been at no great distance from the junction

of the Red Marl with the Lias; for example, at Droitwich, at Stoke Prior, and also near Croome and Upton. The Lias is the next in the ascending series of secondary strata to the Red Marl; and every point in this county, where the marl approaches the Lias, it is more argillaceous than it is about Bewdley and Kidderminster, and Martley and Ombersley; in all of which places the sandstone has much greater firmness, and assumes a rocky appearance. In this county the salt then is found in the softer or argillaceous marl, and not in the firmer or lower beds of sandstone.

The most northern point of the Lias formation in Worcestershire is near Lower Bentley. From this place its line of junction with the Red Marl passes about one mile south-east of Hanbury, and thence at the back of Meer Hall to Goose Hill, and on the north of the Trench woods to Crowle; its course being for the most part marked by a low range of hills. At Crowle there is a good section of it, shewing very distinctly its junction with the red marl. From Crowle, the line of junction crosses successively the roads to Alcester, Evesham, and Pershore, and it then turns due south, passing close to Pirton, and crossing Croome Park, where it forms a low bank, with the house at the foot and the gardens at the top. From Croome the Lias may be traced to Baughton Hill, which is about two miles and a half north-west of Upton. Thence it runs nearly south, crossing the Worcester road and forming a good junction with the Red Marl near to Ripple. Pursuing the investigation further, due east, over to the opposite bank of the Severn, several patches of Lias may be discovered, the most northern of which is an outlyer at Longdon Heath, a mile and a half south of Upton. The Lias thence runs south by Pull Court, and soon afterwards we pass into Gloucestershire, to which these observations are not intended to reach.

It will now be seen that nearly the whole of the south-eastern extremity of Worcestershire belongs to the Lias formation; and I have drawn attention to this fact, in order that the source of the saline springs, which arise in this part, and whose properties so nearly resemble those of Cheltenham and Leamington, may be investigated.

The saline springs which occur in this part of Worcestershire are—

- 1st. The Hampton Spa, near Evesham.
- 2nd. The Hasler spring.
- 3rd. The Defford spring.
- 4th. A spring near Bourn Bank, Upton.
- 5th. A spring at Churchill, near Spetchley.
- 6th. A spring near Stone Bow Turnpike.
- 7th. A spring at Cauldwell;

and also springs at Abberton and Pinvin,—to which we might also add, as closely adjoining our county, the springs at Tewkes-

bury and Walton. There is likewise a spring of this nature at Redmarley. Now most of these springs, in addition to the chloride of sodium, or common salt, which is found in the brine springs at Droitwich, contain certain other ingredients, which they appear to imbibe by passing through the strata of Lias. These ingredients are sulphate of soda and magnesia, to which may likewise be added, though they exist only in small quantities, sulphate of lime, and chloride of magnesium. In addition to these ingredients, the Hasler water is said to contain a small portion of sulphuretted hydrogen.*

Mr. Murchison, whose talents as a distinguished geologist are too well known to need any comment from me, endeavours to account for the existence of the mineral waters at Cheltenham, the whole of which immediate neighbourhood is Lias formation, by supposing that they are all primarily derived from a great subterranean storehouse of rock-salt situated very deep in the earth, and that at Cheltenham the springs so saturated with salt have superadded to them, by percolating through the Lias strata, the sulphates of soda and magnesia and the oxide of iron, which are found in those waters. He says, "These facts may be accounted for under the supposition that the source of the saline ingredients of those waters is the New Red Sandstone, the uppermost strata of which must, from their known inclination, lie at depths of several hundred feet below the town of Cheltenham. If this be the case, and that saline waters are continually flowing upon the inclined surface of these beds, we can readily explain why they occasionally rise to the surface; for waters collected in the New Red Sandstone, at higher levels than the vale of Gloucester, would naturally ascend to their original level by any cracks or open veins which might present themselves in the overlying Lias. The salt water having to pass through various strata of marl and clay, loaded with iron pyrites, or sulphuret of iron, it is to be presumed that during this passage, certain chemical changes take place, which give to the waters their most valuable medicinal qualities."

I have before observed, that although in this county rock-salt and gypsum are found in the Red Marl, this is not the only geological situation in which these minerals occur. There is an instance of a salt spring issuing from the coal measures in this county, near Dudley. Salt springs rise in many of the coal strata, and gypsum and rock-salt are found both in the upper, secondary, and tertiary beds.

I shall not attempt to describe the various situations in which rock-salt is discovered, because it would be impossible

* The water containing sulphuretted hydrogen was obtained whilst sinking a shaft for coal, at the depth of twelve feet from the surface. The shaft is now filled up, but close to it a well, twenty feet deep, has been sunk, and from this well saline water is still obtained; but in the specimens I have procured no sulphuretted hydrogen was discovered.

to do so within the limits of the present article; but I may just remark that in Cheshire, where it must be familiar to most persons, that rich mines of salt exist, this mineral is found, as in Worcestershire, associated with Red Marl. There the solid beds of salt are worked, and are of immense thickness. The upper bed in that county, which is about forty-two yards below the surface, is at least twenty-six yards thick, and is separated from a lower bed by a stratum of argillaceous stone, ten yards thick. The lower bed of salt has been sunk into forty yards. But these salt formations become insignificant, when compared with some of those on the continent. Count Laborde tells us, that at Cardona, in Spain, there is a salt mountain that has not been worked, which is six hundred and sixty-three feet in height, and twelve hundred and twenty-three feet in breadth at its base. "Nothing," says he, "can compare with the magnificence of the spectacle which the mountain of Cardona exhibits at sunrise. Besides the beautiful forms that it presents, it appears to rise above the river like a mountain of precious gems, displaying the various colours produced by the refraction of the solar rays through a prism."

The salt mines of Hungary and Poland are the most extensive repositories of rock-salt in Europe; and the details connected with them are so curious, that it would be desirable to give some description of them; but this passing notice may serve to call attention to the geological formation of rock-salt in those countries, which does not very greatly differ from its connexion with the Red Marl in this country. It is gratifying to us, as a commercial people, to be informed that a greater quantity of salt is exported from this kingdom than from all other nations; and that notwithstanding Poland contains the most extensive salt-mines, the advantages this country possesses in facility of transport enable us to supply a large portion of that country with salt. If it were not placed beyond doubt, by official returns, it would appear incredible that upwards of four hundred thousand tons of salt are exported from Liverpool annually, the whole of which is furnished by the mines of Cheshire.

In regard to the original formation of the beds or strata of rock-salt, in this and other countries, different theories, opinions, and conjectures have been formed and proposed; but it is one of those geological questions, which are extremely embarrassing in their nature, and very difficult in their solution. It is worthy of remark that wherever rock-salt is met with, sulphate of lime or gypsum seems to be very generally discovered, in mixture with the earthy strata above it. In most parts of the world where these gypseous strata are found, marine shells are mixed with them; but this has not been discovered to be the case either in Cheshire or in this county.

Many persons have been induced to consider the beds of rock-salt in Cheshire and in this county as so many deposits of salt

from sea water. Granting this view to be correct, it would greatly favour the supposition that the valley of Droitwich was at one time part of a salt-water lake. Those who maintain this to be the origin of salt say, that whenever the sea water in the valleys became separated from the sea, the salt contained in it would subside by the natural process of evaporation, which would be much assisted by any internal heat of the earth below the water. One strong objection to this view is the fact, that the rock-salt of Cheshire and Droitwich differs much from that contained in the sea, inasmuch as the earthy salts of magnesia, which are found mixed in the waters of the ocean, do not exist in the brine of Cheshire or of Worcestershire.

There is also a very strong proof against the notion that the beds of rock-salt in these two counties are depositions from sea water, in the circumstance that no marine exuviae have ever been found in the strata. Other objections also offer themselves to the validity of this theory; such as the enormous depth of sea water necessary to the production of a body of rock-salt forty yards in thickness, and also the difficulty of accounting by this means for the mountain of rock-salt at Cardona, in Spain, to which I have before alluded. Nevertheless, the high authority of Mr. Lyell seems rather to favour the opinion that there may have occurred immense depositions of salt in the above manner. He says in his *Principles of Geology*, when speaking of the Mediterranean—"What profundity, then, may we not expect some of the abysses of this sea to reach! The evaporation being, as we before stated, very rapid, the surface water becomes impregnated with a slight excess of salt; and its specific gravity being thus increased, it instantly falls to the bottom, while lighter water rises to the top, or that introduced by rivers and by the current from the Atlantic flows over it. But the heavier fluid does not merely fall to the bottom, but flows on till it reaches the lowest part of one of those submarine basins, into which we must suppose the bottom of this inland sea to be divided. By the continuance of this process additional supplies of brine are carried to deep repositories, until the lower strata of water are fully saturated, and precipitation takes place; not in thin films, such as are said to cover the alluvial marshes along the western shores of the Euxine, nor in minute layers, like those of the salt 'étangs' of the Rhone, but on the grandest scale—continuous masses of pure rock-salt extending, perhaps, for hundreds of miles in length, like those in the mountains of Poland, Hungary, Transylvania, and Spain."*

There can be no doubt that the whole of the vale of Worcestershire has been at some distant period part of the bed of an immense ocean, and therefore it is possible that our salt may have been deposited in some such manner as Mr. Lyell thinks is

* Vol. 1st, p. 298.

now taking place in the bed of the Mediterranean sea. But it is certain that chloride of sodium, or salt, is one of the products of volcanic emanations, and of springs in volcanic regions, and that these springs are also found in the tertiary, transition, and primary rocks; and therefore the original source of salt may be as deeply seated as that of lava. Salt springs also rise through granite, which again connects them with igneous phenomena. The hot spring, for example, at St. Nectaire, in Auvergne, may be mentioned as one of many containing a large proportion of chloride of sodium, together with magnesia and other ingredients.* It seems, therefore, most congenial to the spirit of true philosophy, in the imperfect state of our knowledge of those circumstances which have governed the deposition of salt in the strata of the earth, not to lend an implicit belief to any theory that may be propounded. We shall, at present, best insure the progressive advancement of geological science by industriously accumulating facts, and cautiously drawing conclusions from them, rather than by prematurely arriving at conclusions, which may turn out to be erroneous, and stop that ardour of investigation which never fails to urge on the powers of the mind to exertion when important facts are still to be discovered. In truth, every student of geology should have his mind strongly impressed with the danger that he falls into by hypothetical reasoning, and all those who may be so disposed should keep in mind the example of Saussure, of whom it is related as a geologist, that in proportion to the avidity with which he sought for facts, was the care with which he avoided vain speculations. If he sometimes advanced an hypothesis, it was with a reserve justly admired, although rarely imitated, and only when the facts seemed imperiously to command it. When new facts came in opposition to his former opinions, he abandoned them, or modified them without regret. It is by this sober attention to facts, and by orderly arrangements, that modern geologists have been able so much to advance their science. An excessive fondness for theorizing, unconnected with accurate observation, was the sin of the scientific writers of the sixteenth and seventeenth centuries; and geology, in common with several others of the physical and experimental sciences, has had more difficulty in removing the rubbish which her ill-judged admirers had placed in her way, than in overcoming the natural obstructions of her path. Limestone, for example, was considered as entirely the result of animal action, and the various formations of that rock were viewed as accumulations of altered shells and corals. But neither shells nor corals occur in primitive mountains, although these often contain extensive beds of limestone, and although lime has been proved to enter into the composition of most of the simple minerals of which primitive rocks are composed. It is therefore evident that lime is an

* Annales de l'Auvergne, tome 1, p. 234.

original substance in primitive mountains, and has been formed at times independently of animals. Salt also may be, and probably is, an original production in the bowels of the earth.

It is not, however, my intention to pursue further these speculations, but rather to confine our attention to certain particulars connected with the salt springs in Worcestershire. Droitwich and Stoke Prior are the only situations in which salt is now worked for manufacture; but there can be little doubt that other springs exist in this county. I have before mentioned that the neighbourhoods of Upton and Croome afford indications of salt; I may also notice the farm called the Brine Pits, in a north-easterly direction, two miles and a half from Wich; and, according to Camden, it appears that prior to his time several weaker pits of brine had been worked in various parts of Worcestershire, but they had been closed to prevent the excessive consumption of wood, which, before the discovery of coal, was the article used for evaporating the water from the salt. I may also observe that there is reason to think that in the immediate neighbourhood of Worcester brine may be found. At the distillery on the west bank of the Severn, Mr. Williams sunk a well of great depth, from which he procured salt water. In cutting through the strata for this well, when at the depth of about 110 feet, they came to marl, with which was intermixed abundance of gypsum, and the water that was procured rather lower was impregnated with saline matter.

It does not appear certain at what period the manufacture of salt was first carried on in this county, but we know that at Droitwich pits have been worked from very remote times. Salt was an object of taxation at a very early period. Ancus Martius, 640 years before our era, "*Salinarum vectigal instituit.*" This tribute was imposed on the Britons, when our isle was possessed by the Romans, who worked the Droitwich mines, and who made salt a part of the pay of their soldiers, *salarium* or salary; hence the custom at the Eton Montem of asking for salt. At this early time in the manufacture of salt, prior to the use of coal, the evaporation of the brine was effected by the burning of wood, and serious inconvenience began to be felt in consequence of the forest of Feckenham being gradually diminished by the demands for the salt pits. Leland says, "For making salt is a great and notable destruction of wood, and hath been and shall be hereafter, except men use much coppices of yonge wood." "The lacke of wood is now felt in places near the wyche. For whereas in places near about they used to buy and take their wood, the wonted places are now sore decayed in wood. They be forced to seek wood as far as Worcester, and all the parts about Bromsgrove, Aulchurch, and Aulcester." "I asked a salter how much wood he supposed yearly to be spent at the furnaces, and he answered that by estimation there was spent six thousand loads yearly." This observation forces upon us the

consideration of the importance of coal to the manufacturing prosperity of this great country. It is manifest that, but for the circumstance of coal having been made subservient to evaporating the brine, long ere this the manufacture of salt must have ceased in this county. Instead of that occurrence taking place, subsequent events have shewn that commercial enterprizes and well-directed speculations have greatly increased the produce of salt.

Until the year 1725 the brine that was procured to evaporate was comparatively weak, and afforded but a small proportion of salt. In fact it was yielded by superficial springs, situated above the bed of gypsum or talc, and the working of the pits afforded but little advantage to the proprietors. In that year, Sir Richard Lane, Mayor of Worcester, made a most important discovery, which added great value to the salt springs, and in consequence of which the quantity of salt procured from these springs has been ever since very much increased. He, being informed by some persons concerned in the salt works of Cheshire, that the strongest brine in that county lay lower than the pits in Droitwich were commonly sunk, ordered the gypsum which was at the bottom of the pits to be sunk through. Upon this the strong brine broke through in rich abundance into the pits. This was indeed a grand revolution in the brine pit speculations, and one which has been productive of most important effects to posterity; but, however, like most other revolutions, it was the occasion of considerable evil to many persons who were then concerned in the manufacture of salt, to whom the old or superficial pits belonged. Dr. Nash says, "From henceforth the old pits became of no value at all, which some years before were worth near £5000 per annum, and esteemed the surest property a man could enjoy. Charities designed to be perpetual were funded in it; many women were jointured upon it; and such an estate was in every respect judged far preferable to land. So that the confusion and distress which ensued in the town and neighbourhood cannot easily be described." So it is in the great scheme of communities that changes are continually occurring, ruinous to individuals, but which work together so as greatly to increase the prosperity of the State. We cannot here also help pausing to remark, how singular it appears, that nearly two thousand years prior to the discovery of the strong brine, man should have been directed, probably by the circumstance of the saline springs coming to the surface, to evaporate the weaker brine, and should have gone on for that long period making use of this weak solution to procure the salt, when, if he had only dug a few feet deeper, much richer brine would have been found, which would have more amply repaid him for the trouble of working it. The obvious conclusion from this observation is, that we know not what treasures may yet be in store for us buried in the earth's bosom; and it enforces upon us the conviction, that in studying the stratification of the crust of the earth, we are not only doing what

must inevitably add to our present happiness and enjoyment, but also that our researches may lead to great practical advantages.

With respect to the depth below the surface at which the brine is procured, I may, in the first place, observe, that the marl from twelve to eighteen feet from the surface, which is about the depth of the pump wells at Droitwich, is abundantly supplied with springs of water, which, in many parts of the town, afford very good pump water for domestic purposes. But this is not the case in parts of the town near to the south bank of the river Salwarp. Many of the wells in this direction, which are not much above twelve feet deep, yield water so much impregnated with salt as to be unfit for domestic purposes. I evaporated some water, for example, obtained from a pump in the town a little to the south of the canal, and procured from a pint of water 540 grains of salt.*

I dwell upon these circumstances in order to shew that it was probably the salt-springs rising so superficially which in the first instance directed the inhabitants in by-gone times to become salt-makers; for it appears that this superficial indication of salt is a very good guide to it at a greater depth, most of the brine pits that are now worked occurring in the part of the town where these superficial weak brine springs prevent the inhabitants from having good pump water. These springs, however, would be of little use in affording brine for evaporation, the quantity of salt contained in them being much too small to repay the expenditure occasioned by the consumption of the coal necessary for that purpose. In order to obtain the brine fit for evaporation, so as to afford a remuneration for the expence of this process, it is necessary to penetrate very much deeper. The section from the surface is as follows:—First a stratum of mould, three feet deep; then a stratum of red marl, forty feet deep, which abounds with water of a brackish nature. After that a stratum of marl, which extends for 130 feet. In this marl there are no springs of water: it is quite dry, but is penetrated with perpendicular veins of gypsum (sulphate of lime). At the

* No. 1. South of canal. Solid contents 540 grains in 16 fluid ounces. Soda and lime, combined with muriatic and sulphuric acids, with a trace of iron.

No. 2. Norbury's. Solid contents 12 grains in 16 fluid ounces. Lime and soda, combined with muriatic and sulphuric acids, with a *slight* trace of iron.

No. 3. Penrice's. Solid contents 8 grains in 16 fluid ounces. Lime, combined with muriatic and sulphuric acids, with a slight trace of iron.

No magnesia indicated in either of the above—no iodine.

The average depths of fresh water springs in the vicinity of Droitwich are as follows, viz.:—

At Wilton, about.....	40 feet.
At Smith's Corner, at the bottom of the Hill...	14
At James Hale's, at the top of St. Andrew-street	18
In the town, about.....	9
At Hill-end.....	22
At the Ford.....	22
At Rashwood.....	100

distance of 130 feet from the commencement of the gypsum in the marl, we come to the strong brine, which rushes up to the surface as soon as it is bored into. This brine is ten feet deep, and the rock-salt is under this river of brine; but rock-salt has never been worked at Droitwich, as it is at Namptwich, in Cheshire. The salt is entirely obtained by evaporation of the brine. The depth of this brine has greatly increased within the past twenty years, and varies in different pits. Rock-salt has been repeatedly brought up by the boring rods when passed through the brine at Droitwich.

Dry rock-salt has been worked in only one situation in this county. It was discovered by Messrs. Fardon and Gossage, at Stoke Prior, in the year 1828; and the working of this has afforded an opportunity of our becoming better acquainted with the salt formation.

Before entering into the particulars of this salt mine, I must state the circumstances which led to the detection of the rock-salt at this spot. It is not here, as at Droitwich, that the brine springs to the surface. There is no salt at this place discoverable in the water of the ordinary wells, so that no indication of the presence of salt arises from them; but when the Worcester and Birmingham canal was cut, it evidently became a good speculation to discover brine, so as to have a salt manufacture there. A brine-smeller was therefore sent for from Cheshire, and after examining the country, he pronounced that there was salt to be found at Stoke Prior. Stoke Prior is three miles and a half north-east of Droitwich, and 160 feet higher than the bed of the Salwarp, where it passes through that town. We arrive at this place from Droitwich by the Bromsgrove road, and it is rather an uneven ride from the undulations of the ground. As immediately around Droitwich, so about Stoke Prior, there are rising hills of red marl, as at Hanbury, the church of which parish is ninety feet higher than Stoke Prior. There are also sections of marl near the Bromsgrove turnpike, resembling those before described. As to the rule by which the said Cheshire brine-smeller determined that there was salt at Stoke Prior I know nothing; but he attached great importance to what he called brine-slips. By brine-slips it appears that he meant a sudden slipping of the red marl, which sometimes occurs about Droitwich. It not very uncommonly happens in this district, that, on a sudden, a chasm will be formed, twenty or thirty feet long and a foot wide, by the giving way of the ground. These chasms are of great depth, and it is supposed by many persons that they communicate with salt strata below. Whether this be true or not, it is certain that the Cheshire salter assured his Worcestershire friends that he smelt the salt at these chasms, and hence inferred that the work of mining might be attempted with security. He probably drew his inference, not from the sense of smell, but from the appearance of the marl.

The result has at any rate proved him right in his prognostication ; for solid rock-salt was here for the first time found in Worcester-shire.

Section of the Strata at Stoke Prior.

Feet. Inches.			
No. 1.—	111	0	Red marl varying greatly in hardness, but not divided into strata. It abounds with water. A pit six feet diameter required a ten-inch pump working almost constantly to draw it. The water contains sulphate of lime, but no salt.
No. 2.—	195	0	Red and green marl not stratified. This bed contains numerous perpendicular veins of gypsum. It is perfectly free from water.
No. 3.—	24	0	Red marl, containing rock-salt nearly pure. This bed is exactly like the lower part of the preceding, except that rock-salt occupies the place of gypsum.
No. 4.—	0	6	First bed of rock-salt very impure; reddened by marl.
No. 5.—	3	6	Red marl, with veins of salt.
No. 6.—	10	0	Rock-salt, containing 25 per cent. of marl, (nearly red).
No. 7.—	1	6	Green marl.
No. 8.—	13	0	Red marl, with veins of salt.
No. 9.—	6	6	Rock-salt, similar to No. 6.
No. 10.—	2	6	Red marl, with veins of salt (reddened.)
No. 11.—	39	0	Thick bed of rock-salt, varying in the proportion of marl, containing from 20 to 7 per cent. (reddish.)
No. 12.—	24	0	Red marl, with veins of salt (veins of salt flesh colour.)
No. 13.—	30	0	Rock-salt same as No. 11—pierced 30 feet, and not passed through.

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Section at Droitwich.

	40	0	Red marl, free from gypsum, abounding with water.
	130	0	Red marl, with perpendicular veins of gypsum.
8 to	10	0	{ Brine. { Rock-salt.
	180	0	

It may be observed that the beds of rock-salt are of immense thickness, and in this particular they bear a striking resemblance to those of Cheshire; they also resemble those in the varying degree of purity in which the mineral salt is met with. Some of these beds contain as much as twenty-five per cent. of marl, intermixed in small masses with the pure salt, whilst the proportion in other beds does not exceed seven or eight per cent. The veins of salt occurring in the beds Nos. 3 and 5, afford beautiful specimens of this mineral, the very small quantity of marl contained, being only sufficient to communicate a slight tinge of red, which rather adds to the beauty of their appearance. The proprietors of this rock-salt mine continued to excavate the solid mineral for a considerable period, and then, endeavouring to copy the operations of nature, they introduced a supply of fresh water, and converted their mine into an artificial brine spring. The dissolution of the mineral in water, was at first effected in large reservoirs after it had been drawn from the pit; but after the introduction of water, they were enabled to obtain a supply of brine by means of pumping, instead of having recourse to the much more expensive operation of excavating the solid beds of salt. After continuing this method of working for some months, a communication took place between the natural brine spring and the mine, which rendered the further introduction of water unnecessary.

It is most probable that all natural brine springs are produced by fresh water coming in contact with beds of rock-salt, and in this way becoming charged with saline matter. This notion is strengthened by the facts observed during the operations of sinking a salt pit. In Cheshire, where these pits have been excavated most extensively, it is quite uncertain, at commencing, whether the product obtained will be dry rock-salt or native brine; but it has been observed that where the latter is met with, it invariably occurs just before arriving at the rock-salt, and immediately on the surface of the first bed of this mineral. It has also been remarked in the operation of boring which is generally employed to ascertain the presence or absence of brine, that when this is present, the boring rods having arrived at a sufficient depth, fall some distance without encountering any resisting solid, and immediately the supply of brine springs up. The boring being continued, indications of rock-salt are next found. On the other hand where no fluid is met with, this non-resistance of the boring rods does not take place, thus shewing that the cavities where the brine springs occur are never in a dry state, and no doubt are produced by solution of the mineral, occasioned by its contact with water. At Droitwich the extent through which the boring rods have been observed to fall, has been increased, within the last twenty years, from about three feet to nine feet and upwards; from which we may conclude that a gradual wasting of the rock-salt continually takes place.

Where native brine is obtained, the supply of it is generally in great abundance. The Droitwich springs are so powerful as to raise the brine to the surface, and it overflows when not reduced by pumping. At Stoke Prior the supply is also abundant, but the level of the surface being much higher, the brine does not reach nearer to this than twenty yards. The brine at Droitwich is met with at the depth of 170 feet, while at Stoke Prior the depth is 330 feet. It is a remarkable fact that the difference in the surface levels of the two situations is just about equal to the difference of depths; shewing, that although the two places are nearly four miles distant from each other, the first bed of rock-salt is perhaps exactly at the same level.

Native brine, as it springs up from the earth, is beautifully transparent. Being derived from so great a depth it is not subject to those variations of heat which affect more shallow springs, the temperature observed being generally 52 degrees. The specific gravity at the Droitwich spring varies from 1.190 to 1.200: that furnished by the spring at the works of Mr. A. Reid, at Stoke Prior, has a gravity of 1.150; and the brine obtained from the spring of Messrs. Fardon and Gossage, at the latter place, possesses a specific gravity of 1.207, being fully saturated with salt. Perfectly saturated brine contains 26 per cent. of pure salt, and about a quarter per cent. of sulphate of lime. An imperial gallon weighs 12.07 pounds avoirdupois and contains 3.13 pounds of salt. The brine springs of Cheshire range in specific gravity from 1.150 to 1.200, and in their contents of salt from 20 to 26 per cent. Sea water contains rather more than two per cent. of common salt. Iodine and bromine have been discovered to exist in the salt springs of Cheshire, and in many other natural springs by Dr. Daubeny, but I have not been able to discover either of these powerful agents in the Worcestershire brine. In order to confirm or refute my own observations, I sent a portion of brine to my friend, Dr. Thomson, of Stratford, whose abilities as an accomplished chemist are well known, and he informs me that his analysis failed to detect either iodine or bromine in the brine. In procuring the salt from brine, the temperature required for boiling the solution is equal to 229 degrees of Fahrenheit's thermometer. This process yields what is usually called fine salt, the same that is employed for domestic purposes. Another kind, called broad salt, is made by evaporation at a lower temperature, by which the crystals being formed more slowly, and in a fluid not agitated by boiling, become more perfect in their form and of a greater size. This kind of salt is chiefly exported, and employed for curing provisions. When the process of evaporation is conducted still more slowly, very large crystals are obtained, which are sold under the name of British bay salt. During the making of fine

salt, a considerable proportion of the salt attaches itself to the pan, and by the influence of the heat it becomes hard and adheres very closely to the iron plates. This accumulates to such a thickness as to render it necessary to be removed once a week, which is effected by allowing the fires to burn out, and then beating the cake with large hammers. The scale thus breaks up into pieces, varying in size from a foot square and two inches thick, to smaller dimensions. This product is called pan scale or picking, and when broken down to a coarse powder is found to be exceedingly useful as a dressing for light sandy soils. The large masses of pan scale are particularly suited to be laid down in grazing fields for the use of cattle, and its employment is strongly recommended to graziers, as the most beneficial results have been obtained from its use.

The pans employed in these operations are made of wrought iron plates, joined together by rivetting, and they vary considerably in dimensions. Those now in use for making fine salt are usually about 20 feet long by 20 feet wide and one foot deep. A pan of this size yields about 20 tons of salt per week. The pan is fixed in a building suitably arranged for the escape of vapour, and immediately contiguous to this is situated the drying stoves. The fire employed for evaporation is so placed that the smoke flues are passed through the drying stove before arriving at the chimney, and in this way sufficient heat is obtained for the drying process. As the evaporation goes on slowly in making broad salt, more extensive vessels are required to yield a sufficient quantity; some of them are upwards of 100 feet long. These pans at Droitwich are heated by fires, but at Stoke Prior the heat is applied through the medium of steam. The brine in this process is generally kept at a temperature between 160 and 170 degrees. The broad salt does not require to be dried in a stove; it is therefore thrown loose into a warehouse ready for exportation.

The labour of making salt is usually paid for by contract, at the rate of two shillings or two shillings and sixpence per ton weight. A considerable part of this labour is performed by females, who are said to withstand better the influence of heat in the drying stoves, where much exertion is used in moving the blocks of salt into various situations to promote and complete their perfect drying. The temperature of the stoves ranges from 120 to 130 degrees. The remuneration obtained by the work-people varies from fifteen to twenty-five shillings per week, according to the situation they occupy, either as contractors for the working of a pan, or labourers employed under the contractors.

Previous to the year 1823, a duty of £30 per ton weight was charged by the government on all manufactured salt. In this year the rate of duty was decreased to £4 per ton, and in 1825 it was entirely taken off. The beneficial effect of liberating a

manufacture from fiscal restriction and official interference was perhaps never more strikingly manifested. When the highest rate of duty was paid, there were only two establishments for the manufacture of salt in this county. These were conducted by Messrs. Stuckey and Farley, at Droitwich, and the duty paid by them amounted to about £370,000 per annum, which sum, after the rate of £30 per ton of salt, would be equivalent to 12,333 tons of salt; and about one-fifth of this quantity was exported duty free, making the annual product 14,400 tons. At the present time, 1835, there are several establishments at Droitwich, producing together about 30,000 tons, and two at Stoke Prior yielding about 15,000 tons per annum, making a total of 45,000 tons, in place of 14,000 tons produced in 1823, being an increase of more than 300 per cent. in twelve years.

In connexion with this account of the manufacture of salt, I must not omit noticing the establishment of Messrs. Fardon and Gossage, at Stoke Prior, for the decomposition of this substance and the preparation of British alkali, crystallized soda, soap and chloride of lime. This manufactory must be regarded with great interest in a political view, as yielding a product obtained from the salt, which is manufactured on the same premises, and possesses all the qualities of the foreign barilla, formerly imported to so great an extent. It is also exceedingly interesting to the man of science, as affording an extensive example of the practical application of those discoveries in chemistry and mechanics which have conferred so much honour on the philosophers of the present age; and which it is the humbler task of the manufacturer to make available to the wants and conveniences of common life. This undertaking was commenced by the present proprietors in the year 1829, and it has already attained such a magnitude, as to afford employment to more than 200 work people.

The first decomposition of salt is effected by treating it with sulphuric acid, which is prepared at the manufactory in immense leaden chambers. The combustion of sulphur by atmospheric air, is conducted in vessels connected with these chambers, and the vapour produced being mixed with nitrous gas and water becomes converted into liquid sulphuric acid. By decomposition with the sulphuric acid the salt is converted into sulphate of soda, which is next mixed with the requisite proportions of lime and ground coal, and then submitted to igneous fusion in furnaces of brickwork. The product from this operation consists chiefly of carbonate of soda, but mixed with sulphur and lime. It is dissolved in water, and by subsequent processes is rendered nearly pure, and at length obtained in beautiful crystals which occasionally shoot out to an astonishing size. In this state the soda is adapted to the use of manufacturers and to common domestic purposes. A portion is submitted to a further purification, and

being combined with an additional quantity of carbonic acid, it furnishes medicinal carbonate of soda. A portion of the solution obtained from the rough soda is treated with lime to abstract its carbonic acid, and is then obtained in the state of caustic soda, suitable for the manufacture of soap, of which a large quantity is prepared at these works. During the first decomposition of common salt, a quantity of muriatic acid is liberated, and it was for some time a desideratum to obtain a useful application for it. The proprietors have recently applied this to the manufacture of chloride of lime, which is extensively used in the arts as an agent for bleaching linen and cotton cloth, and in medicine for the destruction of contagious miasmata.

We cannot but feel pleasure in tracing the various processes through which the brine is thus made available to the production of so many useful articles. In the first stage we observe the brine converted into the various kinds of salt, viz.—table salt, broad salt for the fisheries, bay and agricultural salt. The refuse salt is next decomposed, and one of its elements, viz. sodium, furnishes British alkali, which is converted into various kinds of soap; also crystals of soda for the arts, carbonate of soda, and various other preparations of this substance for medicine. The other element of salt, viz. chlorine, is brought into combination with lime, and furnishes chloride of lime, which is extensively employed by the linen and calico manufacturers. The situation of these works on the banks of the Worcester and Birmingham Canal, communicating with the river Severn in one direction, and with the thickly-populated districts of Warwickshire and Staffordshire in the other; and the advantages arising from an apparently inexhaustible supply of native brine, seem to afford just reason to expect that this establishment may be extended to a much greater magnitude than it has yet attained.*

It will doubtless be expected that I should touch upon the applications of salt, but having already noticed the employment of this article, in the production of various useful com-

* My anticipations of the probable extension of these works, at Stoke Prior, will be realized, even earlier than I expected. Since this lecture was written, the Proprietors have formed a public company, called The British Alkali Company, for the purpose of extending and carrying on this successful undertaking. I am informed that a supply of export-salt, at the rising port of Gloucester, on the same terms as it is furnished by the Cheshire salt-manufacturers at Liverpool, would command a great increase of commerce; and the proposals of the new company having been liberally entertained by the proprietors of the Worcester and Birmingham Canal, they are enabled to meet this increased demand with profit to themselves. This correct view of the real interests of Canal Proprietors in affording facilities to the extension of trade, by a reduction of tonnages, is a gratifying example of that true spirit of commercial enterprise which has placed our enviable island so much in advance of other nations; and, we doubt not, its application to the mineral treasures of our own county, will speedily prove as lucrative as it has already been found in Cheshire.

modities at Stoke Prior, my remarks under this head will be very brief. In addition to its more ordinary uses in admixture with the food of man, salt is extensively employed in our manufactures. It enters into the processes for obtaining sal-ammoniac, glass, chloride of lime, and corrosive sublimate; it is used also in bleaching, in assaying metals, and in the production of many other articles of commerce. Some idea may be formed of the quantity of salt that is consumed by mankind, by considering how much enters into the composition of our bread. In making this necessary article, to every bushel of flour one pound of salt is added; and it is presumed that, on an average, every adult person consumes, in his bread alone, independent of what is taken in other ways, about two ounces of salt weekly, or upwards of 100 ounces every year. So that taking the population of Worcester and suburbs at 30,000, the inhabitants of this town consume in bread alone 1674 cwt. of salt yearly; or, if we take the population of Worcestershire at 210,000, its inhabitants consume 11,718 cwt. every year.

It is a matter of daily observation, how the instinct of animals prompts them to seek for salt as apparently necessary to their health. The want of this stimulus to the digestive organs is severely felt by the animals in some countries. In some parts of South America there is a great scarcity of salt; and in the States of La Plata, the sheep and cattle, when they discover a pit of clay salt, rush together to feed upon it, and in the struggle, many are trodden to death. In Upper Canada, the cattle have plenty of wild pasture to browse on in the woods, but once in a fortnight they return to the farm of their own accord, in order to obtain a little salt; and when they have eaten it, mixed with their fodder, they return again to the woods. Man obeys the same law as these lower animals, in showing so strong a desire for the mineral and saline waters, and by attributing to them such great powers in preserving and restoring his health. Our own immediate neighbourhood well illustrates this position. The waters of Cheltenham have alone, either immediately or remotely, been the means of attracting to that locality a population of between twenty and thirty thousand inhabitants; and in Warwickshire, at Leamington, a very large population has been brought together by the same cause.

Now according to Mr. Murchison, we must look to the bed of rock-salt, which exists in the red marl formation, as affording the principal ingredient, chloride of sodium, in all these mineral waters. He says, "Now if sea-salt be the most abundant saline ingredient in all the mineral waters of Cheltenham, it is present in still larger quantities in those wells which occur near the western edge of the formation; where the Lias forms only a thin covering above the marls of the New Red Sandstone. At the

new spa near Tewkesbury, where formerly the mineral water at shallow depths below the surface was very slightly saline, it was recently found to be much more impregnated with salt, when the sinking was carried to the depth of ninety feet; and I have no doubt that a similar result would follow by deepening any of the mineral sources which are so numerous in the vale of Gloucester, at Walton, &c." Again, at Cheltenham, when experimental borings were made by Mr. Thompson to the depth of 260 feet below the surface, the water of the lowest stratum of marl or clay was found to be more highly charged with the chloride of sodium, or common sea salt, and to contain less of the sulphates than the existing wells, none of which have been sunk to a greater depth than 130 feet. Thus then we perceive that human experience, in having found the healing effects of saline mineral waters, has only confirmed what may be observed generally in the animal kingdom, that salt is almost universally employed for the preservation of health. But the bed of rock-salt which exists in this county so extensively, and of which there is probably a portion, though at a great depth under the foundation on which this city is built, affords abundance of springs of the same nature as those at Cheltenham and Leamington. I have already enumerated several, the most remarkable of which are those of Hampton, Hasler, and Defford;* and there is no doubt that if the same fortuitous circumstances which occurred at Cheltenham or Leamington were to arise to give notoriety to the springs and to attract the attention of invalids to either of these localities, numbers of persons would annually flock thither, and would find the effects of these springs just as salutary as those of the former watering places. In these days of successful enterprize, when it has become so much more easy than formerly to address the public through the medium of that

* No. 1.—*Hampton* contains *barely 5 grains*, in the fluid ounce, of the sulphate and muriate of lime, soda and magnesia—*no iron*.

No. 2.—*Hampton*, identical with No. 1—containing full 5 grains of saline matter, in the fluid ounce—*no iron*.

No. 3.—*Defford*, contains 70 grains, in the fluid ounce, of muriate and sulphate of soda, lime, and, I think, magnesia, but *chiefly muriate of soda*—*no iron*.

Some enterprising individuals were induced, about ten years since, to make a very extensive attempt to procure brine at Ryall Hill, near Upton-upon-Severn. The operations of sinking and boring were persevered in for upwards of twelve months, and after an expenditure of several thousand pounds, without any successful result, the works were abandoned. The inducements to select this situation for the experiment were the neighbourhood of the surface brine spring of Defford, which had been formerly worked for common salt, and the advantages of transport afforded by the River Severn. The strata passed through were very similar to those at Droitwich and Stoke Prior, consisting of 69 feet of red and blue marl furnishing abundance of water, slightly impregnated with salt, but not containing any gypsum. The pit was sunk further through 162 feet of marl containing numerous veins of gypsum, free from water. The operations were further continued by boring 225 feet through similar marl. Thus, the whole depth passed through was 456 feet, without arriving at any indications of salt.

all-powerful engine, the press, it would perhaps prove no very difficult task to attract public attention to these waters. One thing has certainly struck me with surprise, and that is, that no attempt has ever been made to introduce artificial sea-bathing at Droitwich. The supply of brine is so abundant, that a large, cold, salt-water bath, in that town, is practicable with very little expence; and when we consider the distance at which we live, in these midland counties, from the sea-coast, and the crowded population of the manufacturing towns in this part of the kingdom, to the relaxed population of which this artificial sea-bathing, both cold and tepid, would be very likely to prove salutary, it seems probable that an establishment for salt-water bathing might succeed in the neighbourhood of Droitwich. The Salt Company of that borough have every facility for promoting such an experiment; and they would deserve well of the community if they would undertake this spirited enterprize.

In the foregoing remarks it has been my desire to bring under our review some of the important claims which geology has upon our attention, inasmuch as it is closely connected with our knowledge of many productions that are necessary to our comfort and well-being. The fundamental point on which this science rests is to ascertain the order in which the materials which constitute our planet are disposed. A superficial observer might suppose that these materials are scattered irregularly over its surface, or confusedly thrown together. So far from this being the case, it is incontestably proved that the mineral masses are for the most part disposed in stratified beds, more or less inclined to the plane of the horizon. This outcropping of the strata, as it is called, is productive of the greatest benefit to man. Had they remained nearly in a horizontal position, one stratum might have covered the whole globe. There would have been neither mountains nor valleys, and man would have known nothing of the inferior strata except by artificial excavations. But the great convulsions which opened the fountains of the deep, and burst asunder the crust of the earth, though attended with the greatest devastations, have left the surface of our planet more suited to the actual condition of man, and have brought to light the more valuable of its mineral products, without which many of the arts, and I may add many of the sciences too, would have been unknown. The beds which at one point lie at an impenetrable depth, are at another point elevated to the surface, and their contents rendered accessible to man. Who, then, can doubt that every fact added to the list of human acquirements,—that every truth rescued from the dominion of ignorance and error,—that every addition made to sound knowledge will more and more evince the wisdom of the great Creator, and prove that the works

which declare his glory and shew his handy-work, speak the same language with those which announce his providence and his will to man.

But apart from these sublime reflections, I have also shewn the intimate relation that subsists between geological and statistical investigations. The salt formation of Worcestershire is in an economical view of great consideration: and it is not too much to expect that the members of a society formed for the express purpose of investigating the effects which our natural productions have upon the prosperity and happiness of the community, should endeavour to ascertain how far the discoveries of science are, in our own neighbourhood, applied to the advancement of manufacturing enterprize, and to the progressive development of the benefits of modern civilization. That our own county is not deficient in taking part in those efforts which are now being so universally made to apply the discoveries produced by modern inquiries to the useful arts of life, I have adduced the strongest possible proof in the ingenuity, the comprehensiveness, the aptitude, and the invention, by which the spirited and enlightened managers of the Salt Works at Stoke Prior have succeeded in procuring from one natural production—common salt—such a variety of useful and valuable commodities.

This affords the strongest encouragement to the members of the Worcestershire Natural History Society, and the inhabitants of the county generally, to attend to their own local history. It is full of interest, and deserves their most assiduous attention. The productions of this singularly fertile county present to the naturalist objects in every way demanding investigation, whilst they, at the same time, offer to the statistical inquirer a variety of circumstances in a political point of view deeply interesting. I cannot, therefore, but hope they may successively become the subjects of research.

APPENDIX.

A.

The first Analysis of the Saline Spring, in the new Well, at Hampton near Evesham, sunk November, 1821, compared with those of Cheltenham and Leamington.

The quantities of gaseous and saline contents in a pint, wine measure.	New Well, Hampton, by Hume.	New Well by Turnpike by Hume.	New Well by Hume, Oct. 1822.	Cheltenham, by Parkes and Brande.			Leamington, by Lambe.	
	Saline spring.	Saline spring.	Saline spring.	Sulphur spring.	Chalybeate spring.	Pure saline spring.	Old Bath.	New Bath
Azotic gas.....	0.	In.	In.	In.	In.	In.	In.	In.
Carbonic acid gas.....	2.06	0.	0.	0.	0.	0.	0.3	0.4
Sulphuretted hydrogen gas.....	0.	2.34	1.43	1.5	2.5	0.	a trace	a trace
Carbonate of soda.....	Gr.	Gr.	Gr.	Gr.	Gr.	Gr.	Gr.	Gr.
Carbonate of magnesia.....	0.	0.	0.	0.	0.5	0.	0.	0.
Sulphate of magnesia.....	0.15	0.19	0.11	0.	0.	0.	0.	0.
Muriate of magnesia.....	4.	4.80	3.	5.	6.	11.	7.	0.
Muriate of iron.....	0.81	0.96	0.61	0.	0.	0.	0.	1.5
Oxide of iron.....	a trace	0.	0.	0.3	0.8	0.	0.	0.8
Vegetable or carbonaceous matter.	0.09	0.09	.11	0.	0.	0.	0.	0.
Sulphate of soda.....	23.06	28.60	17.72	23.5	22.7	15.	7.5	19.
Comparative quantities of the } above saline contents.....	28.11	34.64	21.55	28.8	30.	26.	14.5	21.3
Sulphate of lime.....	3.93	4.91	2.95	1.2	2.5	4.5	18.	14.
Comparative quantities.....	32.04	39.55	24.50	30.	32.5	30.5	32.5	35.3
Muriate of soda.....	28.	33.60	21.03	35.	41.3	50.	41.	53.
Total of saline contents.....	60.04	73.15	45.53	65.	73.8	80.5	73.5	88.3

APPENDIX, B.

The following is the result of an Analysis of Water from several Springs in Worcestershire, obtained in 1835.

Water from a Well at the Distillery, Worcester, not at all saline to the taste, 100 feet deep.

An Imperial Gallon contains.....	{	1.88	grains of Chloride of Sodium.
		111.2	grains of Sulphate of Lime.
			A trace of Magnesia.

Water from Defford Common—very salt, 110 feet deep.

An Imperial Gallon.....	{	5817.6	grains of Chloride of Sodium.
		195.8	grains of Sulphate of Lime.
			A trace of Magnesia.

Water from a Well near Abberton, 36 feet deep.

An Imperial Gallon	{	297.2	grains of Chloride of Sodium.
		176.0	grains of Sulphate of Lime.
			A trace of Magnesia.

Water from Hampton Spa.

An Imperial Gallon	{	112.0	grains of Chloride of Sodium.
		322.4	grains of Sulphate of Lime.
			A trace of Magnesia.

Hasler Harrowgate Water.

A mere trace of Chloride of Sodium.

Sulphate of Lime and Sulphuretted Hydrogen.

Hasler Salt Spring, 70 feet deep.

An Imperial Gallon	{	440.8	grains of Chloride of Sodium.
		4.8	grains of Sulphate of Lime.
			No Magnesia.

A surface Brine Spring at Droitwich, very near a Fresh Water Spring.

An Imperial Gallon	{	1070.4	grains of Chloride of Sodium.
		230.4	grains of Sulphate of Lime.

APPENDIX, C.

Analysis of the Mineral Spring near Dudley.

The specific gravity of the water at 60° is 1018. A wine gallon, or 231 inches (including the water of crystallization), contains—

Chloride of Sodium, Common Salt	grains	917.7
Muriate of Lime.....		338.4
Muriate of Iron.....		47.55
Carbonic Acid Gas.....	cubic inches	23.735
Green Oxide of Iron, dissolved by Carbonic Acid.....	grains	6.22
Azotic Gas.....	cubic inches	12.1
Silica, or Earth of Flints.....	grains	0.75
Sulphate of Lime.....		0.5

APPENDIX, D.

A Letter from Dr. Thompson, of Stratford, which gives an account of his endeavours to detect Iodine and Bromine in Droitwich brine.

Stratford, Friday Morning.

DEAR DR. HASTINGS,

The following are the modes I adopted in testing the Droitwich brine for iodine and bromine. In endeavouring to detect the former, I first added a cold solution of starch to about two ounces of the brine, and then sulphuric acid in excess, to set free the hydriodic acid from any base with which it might be combined, as it

generally exists in the form of a hydriodate; I then added a solution of chlorine in water, to decompose the hydriodic acid, without obtaining the faintest indication of iodine. If hydriodic acid had been present when the chlorine water was added to the solution, a blue band (the iodide of starch) would have been perceptible at the junction of the two fluids,—the chlorine uniting with the hydrogen of the hydriodic acid to form muriatic acid, and the iodine with the starch. This plan of testing for iodine was pointed out by M. Balard, and is, I think, the best method of detecting small portions of iodine. As I repeated it several times with slight variations, I am inclined to think that iodine does not exist in the brine in any form. With regard to bromine being present in the brine, I cannot speak so positively. I only know of two methods, both of which I tried, but without obtaining the slightest trace of any thing like bromine. It usually exists as a hydrobromate. When a stream of chlorine is transmitted through a fluid containing it, the hydrobromic acid is decomposed, the chlorine and hydrogen combining, and the bromine being disengaged, imparts a yellow colour to the fluid, and by exposing it afterwards to heat, the bromine distils over, and may be collected in a receiver. This is the mode of obtaining it from bittern. The other mode is to shake sulphuric ether with the fluid after the chlorine has been passed through it; the ether dissolves bromine, and when it is left at rest it collects at the top, of a rich hyacinthine colour.

Believe me always, your's, very truly,

JOHN THOMSON.

APPENDIX, E.

I find by subsequent inquiry that I have been misled respecting the surface level of Droitwich and Stoke Prior; therefore the inference that the first bed of rock-salt is on the same level at these places is incorrect. The facts are these—

Depth to Droitwich brine..... 170 feet. Depth to Stoke brine 300 feet.

Difference of surface levels between }
Stoke and Droitwich..... } 105

275

Leaving 25 feet difference,
between the depth of the
brine at the two places,
instead of its being at the
same level.

APPENDIX, F.

Rise of the Ground from the Water at Chapel Bridge, Droitwich, to the summit of Rashwood Hill; also from the same place to the entrance at Witton.

		Ft. In.
1st. Length from the Water to Hill-end Gate.....	255 yards.	Rise 32 10
2nd. Ditto from Hill-end Gate to Leather Bridge.....	574	Falls.
3rd. Ditto from Leather Bridge to Ford Gate	471	Rise 20 3
4th. Ditto from the Ford Gate to the summit of the } Hill near Mr. Gossage's	608	Rise 69 9
Total length.....	1908	122 10
Deduct fall from Hill-end Gate to Leather Bridge		7 2
Total rise.....		115 8

1st. Length from Chapel Bridge to Cook's Corner	190 yards.	Rise 12 7½
2nd. Ditto from Cook's Corner, at the entrance of the } Worcester Road, to near Smith's Garden, } at the bottom of Witton Holloway.....	494	Rise 34 6
3rd. Ditto from Smith's Garden to the Gate at Witton..	354	Rise 31 9½
Total length.....	1038	78 11

N. B. The water at Leather Bridge is about 21 feet higher than at Chapel Bridge.

HORTICULTURAL COMMUNICATION.

To the Editor of the Analyst.

SIR,—Through the medium of your useful periodical, I wish to offer some remarks on the inattention of gardeners in the interior parts of the island to the cultivation of a greater variety of esculent vegetables. Many years ago, when I resided in London, I could obtain from Covent Garden market the following wholesome and nutritious vegetables; but they are not to be had in this neighbourhood:—

The roots of the Scorzonera (Viper's Grass.)

The roots of the Sium Sisarum (Skirret.)

The roots of the Tragopogon porrifolius (not perrifolium.*)

Salsify—the Salsifs or Sersifs of the French, who cultivate so many more vegetables for the table than we do in this country.

The Orobis tuberosus and the Lathyrus tuberosus.

Some persons may be disposed to think that the above-enumerated vegetables are only used medicinally. It is true they are prescribed by some physicians as articles of diet to invalids; but it would be greatly underrating their value to suppose that they are adapted to such cases only, and that they would not be agreeable additions to the tables of persons in perfect health. In fact, we cannot have too great a variety of vegetable nutriment. These roots come into season at different times of the year—some in spring—some in summer—and some in the autumn; so that it is to be wished that gardeners would give more attention to the cultivation of them. When we reflect on what has been effected by horticultural diligence in the instance of other esculent vegetables (such as celery, carrots, and beet), it is not unreasonable to expect that in favourable soils and under proper management, the Skirret, the Salsify, the Scorzonera, the Orobis, and the Lathyrus may be made to produce roots three or four times the size of those which they now yield, and that then they would come into general use among families in easy circumstances; for, as the cultivation of them would be attended with considerable trouble, gardeners could not afford to sell them at the same low prices at which they sell carrots, turnips, and other common culinary vegetables.

Mr. Loudon, who has shown so much industry and accuracy in editing various valuable works relating to Natural History generally, and to agriculture, gardening, and botany in particular, has published in his Gardener's Magazine, No. LVIII. for January, 1835, some notices of new culinary vegetables, of which gardeners, and especially London gardeners, will no doubt avail themselves. Herbaceous culinary vegetables, as well as certain roots, are comprehended in Mr. Loudon's notices; whereas the remarks contained in the present communication are restricted to *esculent roots*, which the writer conceives to be deserving of particular attention, as most of them will grow in the open garden, and will keep well in sand throughout the winter.

I am, Sir,

Your's, &c.

A FRIEND TO HORTICULTURE.

Birmingham, June 14th, 1835.

* Tragopogon is often made by botanists of the neuter gender; but it is a noun masculine.

LIONEL LACKLAND,

THE HIS SAUTOR;

OR THINGS CONCERNING MYSELF.

SOAR THE FIRST.

(Continued from page 237.)

As I approached the tent, I was startled by the loud blustering voice of Stratton, interrupted by violent bursts of laughter. I advanced cautiously towards the entrance; Stratton was standing close to the pystrior, while the more humble crowd had retired farther from the prophetic altar, either out of respect for, or fear of the lieutenant, not daring to gaze into the mystery of his fate. While the pystrior was tracing his cabalistic figures on the large slate-stone, Stratton taunted him with the coarsest insolence, looking round with his fierce eye upon the shrinking villagers, and laughing at their superstitious fears; in my curiosity to hear, if possible, the result of the pystrior's calculations, I advanced further into the tent; Stratton no sooner beheld me than I became the mark for his insolence—"Hallo! thou juggler, prick me the fortune of yonder springald, and if his neck be not made for a rope, and his leg for the chain, I'll whip thee off the moor for a false prophet." The pystrior cast a glance upon me, but without uttering a syllable, instantly resumed his work; he alone seemed indifferent to the insults of Stratton. I never was a coward, if bravery be a moral virtue, and not, as some French physiologists would affirm, dependent on the size and pulsations of the heart, then was I ever a brave man, for I was insusceptible of that degrading fear which magnifies danger until we fly from it; but I had by nature that sensibility of nerve, that pride, which feared defeat, that I have seldom anticipated any species of contention without feelings amounting to cowardice; to be publicly abused by a man whose physical strength was overpowering, whose brutality paralysed my mind. I could not descend to his level; I knew not how to reply to his coarse and savage expressions; my mind was full of the chastity of an unpolluted youth, cherishing high, and noble, and delicate sentiments, the inspirations of a pure affection—my retaliation partook of the same spirit—but then, for once, I longed for the grossness of the vulgar, that I might at least wound him too—I was silent—I shrunk back involuntarily as he spoke, I trembled violently—every eye was directed towards me; my face, my brow, seemed burning; I felt the insult; I dreaded the repetition of his ferocious insolence, and yet I was incapable of retaliation; I would have withdrawn, but no sooner did the monster perceive my intention, than springing forward, he seized me by

the arm, and dragged me to the table ; " The pale-faced coward," cried he, " now, Sir cheat, look over this lady-faced puppy, and let him have a taste of the cat in anticipation." Ere he had finished, I shook myself from his grasp, and, bursting with rage, I poured upon him the bitterest taunts ; his eyes glistened, he darted upon me a furious glance, and raising his arm, I should instantly have paid for my revenge, by an utter humiliation, had not a man sprung forward, and by a sudden and dexterous wrestler's trick, laid him prostrate on the ground ; the people shouted, but, as conscious of their error, or danger, instantly became silent. My defender darted through the crowd, but not before I distinguished the features of Mark. The pystrior who had until now been utterly abstracted in his calculations, ere Stratton recovered, forced me out of the tent, and whispering " run, run for your life—as the hour comes so will revenge—away." The fate-man instantly disappeared, as I turned abruptly away, and was soon lost in the increasing obscurity. Revenge ! what does he mean ? muttered I, as I walked musingly on, now giving way to feelings of bitter indignation, and then lost in the labyrinth of conjecture.—Eleven to-night.—The moon was peering over the horizon, streaming her cold beams across the sky, dull with the summer mist, as I walked toward Tolgarrik. My first perception in waking, my constant thought through the day, was of Tolgarrik, not that I had determined upon it as a mere appointment, not that it had occupied my mind as a necessary duty, but still, beneath all my engagements, my conversation with Ellen, my dreams of future joys, still beneath it all there was a feeling of fearful foreboding, an inward restlessness, an anticipation of evil ; that preceding shadow of unborn events. I had *not* determined to be at Tolgarrik, I felt to the last irresolute ; yet as the hour advanced, though I dreaded the development of the event, I found myself, as it were, unconsciously traversing with hasty steps the rough pass round the rocks leading to the cave of Tregagle.

The time was rapidly advancing : it was necessary for me to descend the rocks at some little distance beyond the cavern, I therefore quickened my pace, that by arriving first at the spot I might avoid detection. After creeping noiselessly along, I drew myself within a hollow of the cliff, only a few yards distant from the cavern ; there I remained in breathless expectation. Verily I felt the fascination of curiosity ; the silence of the time was painful to me. I listened, and my hearing seemed to partake of my fears, the rustling of my own dress sounded like thunder, while the very shadows of the night became objects of terror—I heard a step,—again—yet so faint that it was scarcely audible ; looking through the cavern, I could just distinguish the form of some one moving towards me, nearer, and nearer, until I discovered the form of the woman I had formerly seen there. On entering the cavern, she leaned, seemingly exhausted, against the rock ; I could hear her sighs, I fancied she wept. Suddenly starting, she drew a small bundle from under her cloak, and removing what seemed to be the

slide of a lantern, the light flashed full upon her face—it was pale, even as the corpse in the charnel house—and yet how beautiful.—I have not yet forgotten that scene, no not its minutest parts, even her touching appeal still vibrates on my memory—"Oh, forgive me, thou avenging God, I would save him—save all; murder! no, no, I cannot, will not, believe it. Oh, my poor father! grief walks before death, but death comes not to me, and I have grieved for years—to me how insupportable is life, how enviable death; yes, how would I array myself in bridal dress, and deck my hair with the fresh flowers of the green world, and give up all of life for the dark, silent, noisome grave; exchange the voice and look of love for the trail of the slimy worm—death once was horrible—but I would have done with life—hark! he comes. Save me, oh God." "Woman!" said a stern voice, yet did I not perceive the man enter the cavern, so intensely were my thoughts fixed on the female; I resolved to rush forwards and save her, my affections were roused—"Woman! what voice did I hear, no listeners, have you?" "No, no," replied she, "listeners have I none, but the spirits of the dead, and the presence of one—" "Peace, peace, I heed not the dead; girl, I have lived beyond fear—beyond hope." "And beyond love," said the soft timid voice of the female: "Well, well, girl, thou sayest I must repent, and love is the sister of repentance." "But thy repentance may be remorse, thy hope despair." "Silence! some one approaches: it cannot be *him* yet; did you give the note?" "Yes." "He took it?" "Yes." "'Tis well." Another man whom from his height I suspected to be the pystrior, entered the cavern. "Both here," said he, "'tis near the hour; the boat rides safely under the crag, she cannot beat away; the tide flows at one." I saw him take the lantern, and instantly the light flashed across his fierce, attenuated, pallid face—it was the pystrior. The men spoke together for some time, apart from the woman, but so low that I could hear nothing distinctly. The voice of some one in the distance startled them; they withdrew behind the cavern, leaving the woman alone; the sound of advancing steps became more audible, in a few minutes Stratton entered the cavern. I knew him by the rough harsh tones of his voice; he sprung forward as if half afraid of his adventure, and, with a terrible oath, uttered the name of Allein, ere he perceived the poor girl standing before him. "Who calls on me?" replied the deep, low, yet musical voice of poor Allein, "Who calls on me? that voice; I should know it—know it—when the hoarseness of its tones have sounded in my ear like a death knell, through many a long year—it comes again—who art thou?" "Oh, curse upon it, Allein, no trifling, you know who I am; by your own appointment I came here; I have not forgotten you—come, Allein, resign the paper, and ask what you like; forget the past—come, give me your fair little hand, and I'll read a fortune for thee as bright as the moon-beam." "Stand back, man," said she, as he advanced towards her, "I am no longer familiar with thee—with the past." "Allein!" "Peace, that name died with my innocence; ruin—the ruin of my

pure heart obliterated all the features of the past ; I say I remember that voice, but thy name at once breaks the charm—thy name is ——” “ Stratton,” he replied.—“ Aye, I knew it, enough, that word shall never pass my lips.” “ Come, come Allein, fool me no longer ; the past we cannot recover ; let us forget it ; I will be a friend to thee ; but resign the paper : I have sought for you for years, I wished to help you, to protect you, Allein.” “ Protect me ; aye, aye, to protect thyself rather, to secure thy fair bride without fear of interruption. Man, she never shall be thine,” she continued, in a voice that startled even Stratton. “ Who dares say that ?” “ Thy Fate.” “ ’Tis false ; come, girl, I must away, the paper—for that purpose I meet you ; if you decoyed me to this black hole merely to banter me with thy croaking complaints, I will compel thee to resign the paper.” He seized her as he spoke—“ The paper.”—“ Take it, wretch,” said Allein, holding something at her arm’s length, but ere he could accomplish his design, a shadow fell across the entrance of the cavern, startling him from his purpose ; the flickering moonbeams fell upon the tall gaunt form of the pystrior—“ What, lieutenant,” said he, with the utmost coolness, “ you are gallant to-night—you woo as you fight, close grapple with her, arm to arm, and no quarter.” “ Who are you ?” shouted Stratton, “ I should know you for that rascally cheat of the moor ; what do you here, fellow ?” Stratton advanced a step or two forward—“ Hold, lieutenant, not a step more if you value that which is useless—your life ; I have barkers here,” presenting a pistol, “ which give no quarter to ——. Who am I ?” he turned his face so that the moonlight beamed full upon him, “ look at me, well, lieutenant, who am I ? are you answered ? or must I call up the name of Henry Askin, of the Penelope sloop of war ? true, lieutenant, I am somewhat worn and wan since that merry morning when the sun sparkled so cheerily on the green waves of the Atlantic.” “ When you saved my life, you would say,” replied Stratton, “ thank you Sir, I did, but you had too proud a mind to endure the obligation, you acknowledged it, bravely ! bravely !” “ I remember that too,” said Stratton, “ you were flogged round the fleet.”—“ Ah !—and deserted—ah, ah, ah !” laughed the pystrior in hoarse and bitter tones—“ that was a worthy acknowledgment that repaid the salvation of life, with worse than death—with ruin, and years of crime and sorrow.” He advanced towards Stratton as he spoke—“ I have sought thee, thou monster, in all countries and climes, I longed in agony to crown thee with the chaplet of ruined hopes, but ’tis woven by other hands—nay start not, thou art safe from me ; thy fate is filled up, and revenge will fall upon thee like the lightning’s glance—thou art doomed.”—“ Doomed,” re-echoed the voices of the girl and a man, who now entered the cavern.—“ Yes, wretch, thou art doomed,” said the man who advanced, and in whom I recognised the former companion of the woman. I felt some dreadful act was premeditated, yet to move might be fatal to both. Stratton and I were unarmed—my blood thickened round my heart, my eyes seemed bursting

from their sockets ; " Merciful God, protect the victim," muttered I—" Ah ! what moves there ?" cried the pystrior. I shrunk still further into the rock. " I see I am entrapped," said Stratton, in a low, dogged tone of voice, " but for what cause I know not—if plunder be your intention, I have little about me to tempt cupidity." " Plunder !" muttered the men. I saw the female retire to the further end of the cave, where she remained leaning against the pebbly sides. " The moon has risen, beyond twelve, the wind comes squalling over the sea, we must hasten," said the pystrior. Stratton stood motionless before them, he could offer no resistance—that frame, usually so insensible to alarm, seemed now paralysed by the uncertainty of the evil. With a quick, hurried tone of voice he appealed to them as men,—“ Would you take an advantage of a single unarmed man ; you have decoyed me here as a bird to the snare ; you may injure me, but think not your punishment is uncertain, as there is a God above.”—“ Peace, ruffian, who talks of God ?” said the deep-toned voice of the man,—“ have you lived so generously with man as to hold a claim with God. Do you know this dark cavern, does its echo whisper of your humanity ?” “ I suspect who you are,” replied Stratton, “ and to what you refer, but be my witness if I struck not in my own defence.” “ Ah,” screamed the man, “ your own defence—to ruin the purity of the purest heart that ever beat ; that knew no affection but love ; look, look ! devil, damned devil, do you know me ?”—the light flashed full upon his haggard face—“ do you know me ? or must I sink into the degraded witness of my despair—there !” At once he assumed the idiotic expression of Mark, and as instantly lost it. “ ’Tis the last glance of mortal eye that ever shall again behold that horrid image—but it has served my purpose”—“ Mark, Mark, I will give you fortune.” “ Silence, monster ; not all that riches could purchase could save thee from thy fate—oh God ! for this I have prayed, suffered ; suffering without compassion ; reduced to a state lower than the brute—’tis come, the hour is come, and the dash of the blue waves is thy knell.” Stratton made a rush at Mark, but was swung back with a giant’s force, at the same time Mark presented a pistol close to his head, “ Move not, wretch, if you would live a moment longer, hear me, and let my words sink like the deadness of that despair which has rested on my heart, through long years of anguish. ’Twas here, Stratton, we met on that fatal night ; God marked thee for my victim, or I should have ploughed the waves of the green sea, at peace, if not happy—’tis past—we met : Allein ! oh my love, my soul’s joy ! I have loved and worshipped thee for ever, but thou wert ruined, and I have passed the bright days of my youth in the darkness of utter misery, ruin, and desolation ; and thou, Stratton, thou didst all this. Now, now, Henry ! let the light fall upon the face of Mark Askin and his victim. Now, Allein, Allein ! look, look ! thou art avenged.—Ah ! ah !” Mark seized his victim by the throat, nor could the desperate throes of the poor wretch unlink that fatal grasp. I was maddened with

fury, and at once forgetting all feelings of safety, I sprung forwards to the aid of Stratton; ere I could lift my hand, a blow on my breast and forehead laid me prostrate by the struggling form of the murdered man.

I must have lain insensible for a long period, for as I gradually recovered my consciousness, I became conscious of a change of place; the dark sides of the cliffs no longer frowned over me, I lay immovable in what seemed to be a cart, which was proceeding slowly along; while the voices of several persons surrounding me only increased my perplexity. Either I was bound by cords, or my weakness from loss of blood kept me motionless. The words of murder—trial—death—frequently struck upon my ear in connection with that of Stratton and myself; I was perfectly at a loss to account for the change; I attempted to speak, but could only murmur in a low, indistinct tone. After some time, exhausted and stiff with the position in which I had laid, I perceived we were passing through a town, and soon stopped before a low, heavy-looking building; the attendants who accompanied me rung furiously at the bell for some minutes, when a tall, surly-looking man unlocked the door and demanded their business. "What, what," said he, "more of these sea-thieves, these salt-water sharks, these ——" "Here, look to your prisoner, goaler," said a stern voice; at the same time the men in the cart began to unloosen my cords. "Prisoner," said I, "who is a prisoner? not I, it was not I that did it; what mean you?" shaking off the rude gripe of one of the men. "Come, come young man, you'll hang for it, an all's right, a pretty one you, to kill men in the dark; come" said the fellow, dragging me along until I found myself in the yard of the gaol. I appealed to them—I told the tale. "A pretty tale that," said one with a sneer. I was maddened; in my rage I stamped—I raved—'twas useless; the evidence was thought more than presumptive—I was found there, by the murdered man's side, my hand had grasped his dress—no other person could be suspected; and the circumstance of our quarrel on the moor, was an additional proof. The horrid lock was turned upon me in my dark, stifling cell; it was too much, I fainted. Slowly I recovered myself—and how shall I describe my anguish. But I must draw a veil over the months I languished neglected and friendless in my cell—how I was tried and acquitted.—What then to me was the bright sun and the surfed ocean—my spirits were broken. Stratton lies beneath the marble stone—the worm is his bridal guest—the shroud is the eider down of his nuptial bed—peace be to him. Ellen—my love—my everlasting love—she, too, slept under the green mound, beneath the dark mourning boughs of the melancholy yew tree;—the maids of the village wept for thee, and drest thy *temple of peace* with the flowers of hope, and they died not, for the dew fell upon them nightly; and as I sat there, their odour came to me like the voice of the departed—I wept; once only knew I the joy of tears—farewell, my beloved—thou art for ever tabernacled in my soul. Soon I bid adieu to the scenes of my boyhood—the

merry, laughing sky seemed to me the mourner's pall, and the soft voice of Ellen came to me in every dash of the blue waters, in every sigh of the winds, every rustle of the leaf. Long oblivious disease fell like a mercy-gift upon me, and then I had only the delirious dreams of departed joys, but they were balm to my soul ; I drank in the draught, and as I slowly returned to life, the dreams of fancy settled into the calmness of a subdued hope.

Ellen I am thine for ever—in the many years of my existence—in all the varied circumstances of it—the vow of my young heart has given an elevation to my mind, and the bitterness of my sorrows has raised me superior to the troubles and sufferings of life.

SONNETS ON THE SCENERY OF THE MALVERN HILLS.

I.

The Worcestershire Beacon, at Noon.

Who treads with upward steps thy sov'reign height,
Majestic Malvern! when the breeze is high,
And clouds are trooping through the summer sky,
Spotting with shadowy tints the vale's green light,
Must own that ne'er his mind by fairer sight
Was fed with thoughts of beauty. Poet's art,
Nor painter's ready pencil can impart
The mingled charm of loveliness and might,
Which spell-binds every sense. He walks the earth,
Yet lifted seems beyond it:—the haunts of men,
Cities, and groves, and fields, and cottage homes,
He looks upon as with an Angel's ken ;
For round him only spiritual sounds have birth,
And only Nature's sweetest breathing comes.

II.

The Priory Church of Great Malvern.

WE in our generation are too proud :—
Fancied monopolists of Learning's rays,
We bask in the pale dream-light of self-praise,
And talk with scornful wonder of the cloud
Of mental darkness, that did once enshroud
Anterior ages :—yet a moment's gaze
Upon a sumptuous pile like this betrays
Our self-conceit and arrogance. He, who vowed
In a lone woodland chase a shrine to rear,
And with elaborate skill this structure planned,
The fine arch poised, and wrought the sculptur'd band,
And bade the rude stone like living wreaths appear,—
He who thus served his God with holy fear
Chides us with strong, though silent, reprimand.

E. S.

ON THE HABITS OF THE BRAKE NIGHTINGALE (PHILOMELA LUSCINIA, SWAINS.)

"Qualis populeâ mœrens Philomela sub umbrâ
Amissos queritur fœtus; quos durus arator
Observans nido implumes detraxit: at illa
Flet noctem, ramoque sedens miserabile carmen
Integrat, et mœstis latè loca questibus implet."

Virgil, Geog. IV. 511.

Or the habits and manners of the Brake* Nightingale, little is as yet known beyond mere conjecture. The reasons for this are manifold; as besides being mostly a nocturnal bird, it is one of very retired habits, hiding itself in thick braky woods, which it seldom leaves. Before proceeding to detail its habits, I shall make a few remarks on the situation of the genus *Philomela* in the systematic arrangement.

Philomela (*Swains.*) is the most eminently typical genus of the *Philomelinæ*, the second typical sub-family of the Family *Sylviadæ* (*Vig.*), the fourth group—and a typical one—of the *Dentirostres* (*Cuv.*), the second tribe of the Order *Insectores* (*Vig.*), *Brachypteryx* (*Horsf.*), *Ficedula* (*Aldrov.*), *Synallaxis* (*Vieill.*), *Salicaria* (*Selby*), and *Ægithina* (*Vieill.*) also belong to the *Philomelinæ*: Swainson also places the genus *Phœnicura* (*Redstart*) in this sub-family; I, however, think with *Selby*, that this genus is more properly ranked amongst the *Saxicolinæ*.

The Nightingale was by the ancients sometimes called *Philomela*—its present generic scientific name—and sometimes *Luscinia*—its present specific scientific name. The former was mostly used in poetry. The latter is derived from *lugens*, mournful, and *cano*, to sing; the English name comes from night, and *galan*, a Saxon word signifying to sing.

The Brake Nightingale arrives in the middle of April, and commences singing about the twenty-sixth of that month, or, should the season be late and the weather unsettled, as in the present year, it remains silent until the beginning of May. Like most other songsters, it ceases singing after the young are hatched.† The females—as is the case with many other *Sylviadæ* (*Vig.*)—arrive eight or ten days later than the males, at which time the latter commence singing. They leave us at the end of August.

The Nightingale is a very local bird—that is, it is only partially distributed over the countries it visits or inhabits; thus in England it has never been heard further north than Doncaster;

* The trivial name *Brake* Nightingale is infinitely superior to the vague and unmeaning name *Common* Nightingale.

† The Yellow Bunting (*Emberiza citrinella*) is an exception to this rule.

nor does it occur in any part of North Wales. The limit of its western range is Somersetshire, beyond which it has never been met with. The reason of this is by no means well explained, and indeed it would *seem* to be perfectly arbitrary, as some of the counties which are not favoured by its melody are remarkable for balminess of climate and softness of air; its favourite food and the thick tangled underwood and rank luxurious vegetation, to which it is so partial, are also at least as plentiful in these parts as in the counties to which it chiefly resorts; nor can it be the coldness of the climate in the northern counties that prevents its visiting these, as it is found in much more northern latitudes in other countries. It seems, however, generally to prefer inland districts to those which are on the coast. Leaving this point as one of those mysteries of Nature which it is beyond the power of man to unravel, let us now proceed to consider those parts of our songster's economy which are better understood.

A small wood near Foston Hall, abounding with underwood and vegetation of a rich and luxurious growth, has, for several years past, been a favourite spot with a pair of Nightingales, which there find a safe asylum in a thick clump of firs, situate on a rising ground; the surrounding parts are somewhat damp and marshy, which is also favourable for this bird of night. The spot is, in short, perfectly adapted for a pair—and probably not more—of Nightingales, and, indeed, I know of no place so well suited for this bird many miles round; except, perhaps, a small clump of firs near Doveridge Hall, the seat of Lord Waterpark, which was visited by a pair of these birds a few years ago: they were, however, soon caught and caged by a neighbouring bird-catcher, and died from the want of that food to which they had so long been accustomed—the fate of by far the greater number of Nightingales that are caught in the course of the year. Almost every one must have heard and admired the song of the Nightingale; I will, however, attempt to describe it for the benefit of those who have not yet enjoyed that treat. The strains are loud, rich, mellow, silvery, and clear, and so far from being a *miserabile carmen*, as sung by Virgil in the lines above quoted, I know few songs which are its equal in sprightliness and vivacity, with the exception, however, of one part, consisting of three or four lengthened notes, beginning very *piano*, and gradually rising to *crescendo* and *forte*, which are certainly of a peculiarly melancholy character. The song of this bird does not equal that of the Yellow-bill Thrush (*Turdus merula*), nor the Garden Thrush (*Turdus musicus*) in mellowness and loudness, but it certainly excels all others as a whole—at least all other British birds, for Audubon says it is quite absurd to think of comparing the song of the Nightingale to that of *Orpheus polyglottus* (Swains.) (*Ornithological Biography*, Vol. I. p. 113.) In my opinion there is only one drawback upon the song of the Nightingale, and that is, the unconnectedness of the strains.

This defect is, however, obviated when several are singing together. Beautiful as is the song of the Nightingale, it doubtless owes much to the time at which it is heard, and the silence and stillness of the hour. In the words of Shakspeare—

“The nightingale if he should sing by day,
When every goose is cackling, would be thought
No better a musician than the wren.”

Merchant of Venice, Act V, Scene 1.

I cannot, however, fully subscribe to this, as I have frequently listened to and admired the song of the Nightingale in broad daylight, when the finest choristers of the woods were carolling on all sides. The melody of the Nightingale may be recognised whilst hundreds of other birds are singing, even by the most listless observer. That the fact of the Nightingale singing in the day as well as at night, was well known to the ancients, although Virgil is the only ancient *poet* who mentions it—is proved by the following passage, which occurs in Pliny's *Natural History*:—“*Lusciniis diebus ac noctibus continuis quindecim garrulus sine intermissu cantus, densante se frondium germine, non in novissimum digna miratu ave,*” lib. 10, cap. 29. The term of fifteen days given by Pliny in the above quotation is probably not incorrect, as the Nightingale proceeds to build in the beginning of May, at which time also, its song commences, and the young are hatched about the eighteenth of the same month, when the male invariably ceases singing; should the female be killed or the nest destroyed, the male again continues his melody. A rainy night does not prevent the Nightingale from singing, as I have frequently remarked from personal observation. The Nightingale seldom commences his song in the evening until all other birds are silent, or if he does, it is only for about ten minutes, when he again ceases. Scarcely have the garden and the yellow-bill thrushes retired to rest, sounding their loud and peculiar alarm notes, than Philomel takes up his *dismal* tale. It seldom sings on dark windy nights; but if, in this state of affairs, the moon should appear, it instantly begins warbling, and once commenced, almost invariably continues the whole night, not ceasing till two or three hours after sunrise. If on a dark and windy night the Nightingale does not sing, it may generally be roused by imitating its strains; if this be done on a *favorable* night, it will commence *instantly*, but on a cold chilly night it is sometimes very difficult to rouse, although I have seldom failed entirely. The shutting of an adjoining gate, the striking of a church clock, the passing of a cart or coach,—if near a road—or even the hearing passengers walking along the road, will frequently cause it to commence singing!—the very incidents which, one might have *supposed*, would disturb so shy a bird. It is, however, probably on the same principle that Canaries and other cage birds sing when a noise is made, or when they hear the

sound of music. When once our songster has fairly entered upon his strains, it is extremely difficult to disturb him. I have frequently for the sake of experiment, thrown a stone into the very bush where he was performing, apparently without producing the slightest effect; and have approached within two or three feet of the branch on which he was perched, without his appearing to heed me in the least; on making a nearer approach, however, the song ceased for a few moments, and then recommenced at the distance of about ten yards off. When disturbed in this manner, the peculiar guttural sound is frequently emitted, as if the bird was scolding you for intruding on his solitude. Little seems to have been ascertained with regard to this sound. Pennant says that "when the young first come abroad, and are helpless, the old birds make a plaintive and jarring noise, with a sort of snapping as if in menace, pursuing the passengers along the hedge." (Br. Zool. ed. 1812; Vol. I. p. 496). According to Knapp (*Journ. of a Nat.*) "the croaking of the Nightingale in June and the end of May, is not occasioned by the loss of voice, but by a change of note,—a change of object." Bechstein, in his excellent *Cage Birds*, informs us that "in anger, jealousy, rivalry, or any extraordinary event, he (the Nightingale) utters hoarse disagreeable sounds, somewhat like a jay or a cat." It is much to be regretted that Montagu, Selby, and Mudie, are silent on this subject. Now it appears to me extremely doubtful whether this croaking sound does proceed from the male, as seems to be the opinion of Bechstein and Knapp. At all events I am certain of this, that it is not made by the male alone; as I have more than once heard the male singing in one bush, whilst the female was uttering its frog-like croak at the distance of many yards from its mate. Some authors have supposed that this guttural noise is not heard until the end of May; this, however, my own experience enables me to contradict, having frequently heard it before the song commences—so early as the end of April.

I one night started a Ring Pigeon (*Columba palumbus*, Linn.) close to the tree in which the Nightingale was singing; the loud rustling of the Pigeon's wings did not, however, in the least disturb Philomel in his *miserabile carmen*, who seemed well aware that he had nothing to fear from so gentle and harmless a creature.—The Brake Nightingale is by no means the only bird whose notes are heard in the night time; there is one other nocturnal songster amongst the Sylviadæ, whose notes, though far inferior to those of the Nightingale, are by no means monotonous or unpleasant—I mean the Sedge Reedling (*Salicaria phragmites*, Selby). If a stone be thrown into a bush where one of these birds is roosting, it will immediately begin to sing. The other "birds of the night" are, the European Nightjar (*Vociferator Europæus*, mihi; *Caprimulgus Eur. auct.*), the Peewit Lapwing (*Vanellus cristatus*), the Meadow Crake (*Crex pratensis*), the Common Gallinule (*Gallinula chloropus*, Lath.), the Barn Owl

(*Strix flammea*), and occasionally, though seldom, and only on clear moonlight nights, the Grey Cuckoo (*Cuculus canorus*). The Wild Duck (*Anas boschas*) and Canada Goose (*Anser Canadensis*, Will.) are also—like most other Anatidæ, Leach—very active and clamorous in the night season. But to return to the subject of this article.

The Brake Nightingale, as before stated, is very rarely to be seen either in the day-time or at night, its habits being extremely shy and retired. When forced to leave the tree on which it is singing, it does not fly across to the tree on which it intends to alight, but flutters round through the bushes, and ascends the tree by hopping upwards, thus eluding observation. I have never found the nest of this species, nor, indeed, is it an easy matter to discover it, as its colour assimilates so closely with the surrounding leaves, which had fallen the preceding autumn. It is composed of oak leaves of the former year, lined with dry grass, and is placed on the ground. The eggs from four to six in number, are of an olive brown colour, and nearly elliptical. Hewitson has not yet figured the egg of this bird in his beautiful *British Oology*,* but Lewin has given a tolerably good representation of it in his *Birds of Britain*.

A friend informed me last summer that some years ago only one Nightingale was heard in Kensington Gardens, which are annually visited by six or seven; and this Nightingale was at length discovered to be a man imitating the song of that bird, and who had mingled with the crowd every night, carolling, as he walked along, the well-known strains of sweet Philomel! All the other Nightingales had been caught and imprisoned by the neighbouring bird-catchers. I have also lately heard of a man who travels about the country, gaining a livelihood by imitating the song of the Nightingale, Sky Lark (*Alauda arvensis*), Yellow-bill† (*Turdus merula*), and other birds! all of which he imitated so successfully that, had he been stationed in the woods, the notes might have been supposed, even by an Ornithologist, to have proceeded from the birds themselves. The organ of imitation was doubtless very fully developed in this person.

Some Ornithologists have supposed that there are two distinct species—and some two *varieties*—of the Nightingale, confounded under one name. The one has been called the *Common Nightingale*, and the other the *Greater Nightingale*. Those who are of this opinion say that the latter, besides being larger than the Common, or more properly the *Brake* Nightingale, “has a much stronger, louder, and deeper voice; but it sings more slowly and more unconnectedly; it has not that astonishing variety, those charming protractions, and harmonious conclusions of the common nightingale; it mutilates all the strains; and, on this account, its song has been compared to the missel thrush, to

* Unless it be in the first or second number, which I have not as yet been able to procure.

† Vulgarly *Blackbird*.

which, however, it is superior in softness and pureness. The Common Nightingale is superior in delicacy and variety, but inferior in force and brilliancy. The Greater Nightingale sings generally in the night so that it is the real night-singer; while among (*brake*) Nightingales this is rather uncommon. Its voice is so loud that it is almost impossible to bear it in a room. It is necessary to keep it always outside the window, either by hanging its cage there, or, by opening it a sort of passage into which it can remove." (*Bechst. Cage Birds*, p. 310.) Such is the account of an eminent Ornithologist, who during a great number of years kept all kinds of cage birds with great success, and from his knowledge in this line, wrote a most useful and interesting volume, which has gone through many editions, and from which the above quotation is taken.

It is possible that two *varieties* of Nightingales may exist in Britain, but I think it extremely improbable that two *species* should have been so long overlooked, when we consider the great attention that has always been paid to these birds in consequence of their superior vocal powers. As to the Greater Nightingale being the only night-singer, that is quite erroneous; as the same birds are commonly known to sing both by day and by night, a fact which was remarked even in the days of Pliny. A few words more and I will conclude.

Much as I admire the song of the Brake Nightingale, I certainly cannot agree with Mudie in the latter part of the following passage, taken from his delightful work the "*Feathered Tribes of the British Islands*," reviewed in the first volume of *The Analyst*:—"To hear it in the morning, especially for the first time, and to be awakened by it upon one of those balmy mornings in May, when every leaf is freshness, and every breath young perfume, is indescribable—worth more than a whole musical festival; but yet it owes much to the time, and the absence of other sounds."* This clearly proves, not that the song of the Nightingale is "worth more than a whole musical festival," but that the organ of melody is very deficient in Mudie. A person with a very moderate share of harmony but large ideality—which I take to be Mudie's case—may admire the song of the Nightingale, or of any other bird, but will not be able to appreciate more definite and scientific strains.

Luscinia seu Philomela, Will. Orn. (*Angl.*)—Briss. Orn.—*Motacilla luscinia*, Gm. Linn.—Faun. Suec.—*Sylvia luscinia*, Lath. Ind. Orn.—Id. Gen. Hist.—Temm. Man.—Steph. Gen. Zool.—Scop. Ann.—*Curruca luscinia*, Flem. Br. Anim.—*Philomela luscinia*, Swains.—Nachtigall, Mey. Tasch. Deut.—Frisch, Vög.—Rossignol, Buff. Ois.—Becfin Rossignol, Temm. Man.—Nightingale, Will. Orn. (*Angl.*)—Penn. Br. Zool.—Lath. Syn.—Id. Gen. Hist.—Lew. Birds of Brit.—Walc. Syn.—Mont. Orn. Dict.—Id. ed. Rennie—Bew. Br. Birds—Don. Br. Birds—Flem. Br. Anim.—

* Vol. I. p. 345.

Selby, Illustr. Br. Orn.—Stewart, Nat. Hist.—Syme, Br. Song Birds—Sweet, Br. Warblers—Bechst. Cage Birds (Angl.)—Nightingale Warbler, Steph. Gen. Zool.—Mudie, Feath. Tribes.

Description ; Male.—Bill dusky ; eyes large, and of a hazel colour ; the whole of the upper parts reddish brown, in some individuals inclining to chesnut ; tail, tawny red and broad ; quills and wing coverts brown, slightly tinged with red, paler at the edges ; under parts pale yellowish ash colour ; legs long, and light brown : length from tip of the bill to end of the tail six inches and a half.

Female.—Does not differ from the male in plumage.

Young of the year.—Before the first moult they are spotted with yellow, and the breast is more yellow than in adults.

NEVILLE WOOD.

Foston Hall, Derbyshire, June 4, 1835.

SONNETS ON THE SCENERY OF THE MALVERN HILLS.

III.

The Herefordshire Beacon.

This hill is remarkable for being, in its upper part, invested with the lines of an ancient camp, generally supposed to be of British origin, but subsequently strengthened and occupied by the Romans.

The jubilant wind hath here a martial tone,—
Here on this height, where once the Roman passed
With all his legions, and the surging blast
Rang with the shout of trump and clarion,
As, like a cloud, the embattled host swept on
From their entrenchments :—lo ! through the dimness cast
By old oblivious Time some records last,
And Memory claims the precinct as her own.
For oft, while lingering here, I half forget
The lapse of ages ;—History's wizard spell
Peoples the fosse and turf-grown parapet ;
Still, still on Fancy's ear the war-notes swell,
And in the breeze's rush, the hawk's shrill cry,
Come the last voices of Antiquity.

IV.

The North Hill, at Twilight.

In such a place as this, at such an hour,
When darkness curtains the theatric show
Of the vain world,—our inward light doth glow
Most brightly, and the soul puts forth her power,
And vindicates her most-ennobling dower ;—
She looks into herself,—and there describes,
As a calm lake reflects the o'er-arching skies,
Thick-coming thoughts, that sparkle like a shower
Of meteor stars, and from her depths outleap,
Bringing not earthly wishes, worldly cares,—
But fulgent aspirations,—Joys as deep
As Heaven is high,—ethereal Hope that wears
The hue and fragrance of the morning's breath,
And Faith, whose radiance thrids the gloom of death.

E. S.

SKETCHES OF INSECTS, PICTORIAL AND POETICAL.

BY EDWIN LEES, M. E. S.

Honorary Curator of the Worcestershire Natural History Society.

“ Shall the poor worm that shocks thy sight,
The humblest form in nature’s train,
Thus rise in new-born lustre bright,
And yet the emblem teach in vain ?”

HAVING before descanted on the importance of entomology, whether considered as an amusement or a study, I pass on to consider the economy of insects, and the “transformations” or stages of development exhibited by their different tribes. This will be found no less interesting than their physiology. Entomology, as a science, may have been but little regarded by us, and among the busy world it has few votaries;—those who are striving for the emoluments of life,—those who are panting for the glittering honours upon the steepy precipice of fame—those who are “seeking the bubble reputation in the cannon’s mouth,” have confessedly but few opportunities for attending to the mechanism of an insect’s wing, and no leisure, but in the moment of irritation, to crush the poor sparkler that has unwittingly intruded upon their attention. But we shall be poor logicians, and feeble reasoners in the school of philosophy, if we thence conclude that there is nothing deserving the attention of a rational being in the economy of the insect world.

Dr. Franklin has not unaptly compared our busy world to an ant’s nest. If we examine it, there is the same hurry, bustle, and contention—and the same selfishness and injustice is displayed, though on a smaller scale. An ant who, after a long excursion, has obtained a maggot, a fly, or a piece of fruit, is robbed of the object of his efforts at the very door of his mansion, and the credit of his labours is assigned to another. Some happy pismire who has carried a long straw for a considerable time, by an unhappy mischance drops it in the crowd, and loses it for ever, while in the contention that ensues, some ignoble, and perhaps lazy insect, who has never wandered a foot from the ant-hill, becomes possessed of the valued rod of office. And yet all this strife, bustle, and perplexity, resolves itself into no apparent useful purpose,—the ant-hill may be made a few inches higher, or a host of unemployed manufacturers may emigrate to find a new field for the exercise of their labour;—but nothing at all commensurate with the apparent toil, labour, and excitement, results from the efforts we witness. The moralist, then, may, without compromising his dignity, find a lesson deserving his

notice in the economy of the ant-hill, and the satirist may here find a pabulum to give force to his sarcasms upon the pursuits of life.

What a difference do we perceive in the results arising from the commonwealth of the bees. Here continued industry is devoted to purposes of manifest utility;—order and arrangement is discernible; hexagonal cells constructed upon mathematical principles meet our view; honey is gathered; wax is fabricated; the whole community is sustained; and not only are the “non-productive classes” (as a political economist would say) maintained by the labour of the rest, but an ample store is provided in magazines, which is reserved for the dreary time when no flowers appear, or the cold renders an excursion hopeless or useless. Will any one, then, be so hardy as to contend that bees furnish no trace of economy or utility?

The Termites, or white ants of the tropics, display in their economy and history many of the arts and arrangements of a civilized nation. They live in immense communities in habitations that, their size considered, are far more remarkable and extraordinary than any structure ever raised by man, not even excepting the pyramids. The king and queen occupy a central chamber, attended by guards and servants, who, though they treat them with every respect, will not permit their egress from the royal apartment. The fecundity of the queen exceeds that of any animal at present known, as she lays 80,000 eggs every day,* which the labourers of the nest convey to the nurseries, where the young are hatched, fed, and carefully tended. The nests are twelve feet in height, in shape like a sugar-loaf, arched, so as to bear the tread of any animal, and impervious to the rain. Within are innumerable arched rooms, passages, and galleries; a central dome supported by Gothic arches, spiral geometrical staircases leading to the summit of the building; and in many instances galleries are connected with each other by elegant elliptic bridges; while subterraneous passages of great extent radiate all around the central building. These insects constantly maintain a standing army, whose only duty is to fight when required, leading a slothful luxurious life at other times. Should the nest be attacked, all the labourers immediately disappear—the soldiers mount the breach, fight with desperate valour, never relaxing their hold upon an enemy—and the moment the confusion and warfare is over, the soldiers retire to refresh themselves, while the labourers return to repair damages in the walls.

Thus, then, a contemplation of the economy of this tribe of insects only, furnishes abundant evidence that the study of insects is not undeserving the attention of the most intellectual;

* At least at certain seasons. Whether this is continued throughout the year is as yet unknown.

and as Dr. Leach has observed—"No person can pretend to the distinction of a good naturalist, who has altogether excluded from his attention the subject of entomology."

But I appeal not to the naturalist—I will be content to take a verdict even from the citizen of the world—from the man of business and bustle—if he will permit me to revert back for a single moment to the buoyant period of childhood. Is there any one, who compelled in former days to con his wearisome dog-eared book beneath the frown of the now bye-gone village dame, or stern rod-bearing pedagogue arrayed in sable velvet and tempest-threatening brow (a race happily now extinct)—that has not occasionally lifted his aching eyes, and envied the glittering butterfly bobbing in and out of the open window where the honey-suckles spread profusely their trumpet-like blossoms? Or if by some lucky accident "the master" was called away, and the hum, the smile, and the laugh began to circulate, till one astounding hubbub frightened propriety from her seat;—did you never hear of some adventurous stripling risking shame and disgrace all for the sake of a rambling, weary, vain chace after that gaudy butterfly? Ah! watch the motions of the boy and the butterfly! now settled upon a flower, it waves its ocellate wings—now at rest, the youth softly advances and dashes his hat upon his victim—the prize is caught! No! in vain he searches the dark recesses of his frontal covering—for lo! high up the fields of air the triumphant insect dashes its renewed flight, nor settles again till vales, woods, and rivers are far far behind. I paint not the mysteries attendant upon the boy's return, nor will I blame him for what the man will, under some other name, pursue with still greater avidity—happy could his emotions then be as guiltless as those of the boy disappointed of his lost butterfly.

But, can any one look out upon the lovely face of nature with a listless eye, when the bright beams of an April sun, and the first balmy flowers of early spring have tempted forth the brilliant-winged butterflies in all their loveliness of hue? Who is there that would not wish to emulate their flight? or who does not admire the gorgeous hue that, sparkling in the sun, forms a vivid contrast with the meeker lustre of the paler flowers on which they settle?

"Behold! ye pilgrims of the earth, behold!
 See all but man with unearn'd pleasure gay;
 See her bright robes the butterfly unfold,
 Burst from her wintry tomb in prime of May;
 What youthful bride can equal her array?
 Who can with her for easy pleasure vie?
 From mead to mead on careless wing to stray,
 From flower to flower on balmy gales to fly—
 Is all she hath to do beneath the radiant sky."

And yet, perhaps, many mellifluous voices have warbled

"I'd be a butterfly,"

who might not have been exactly aware of the process they must pass through before they could become the pretty object they emulated. This very naturally conducts us to a remarkable circumstance in the history and economy of insects—their transformations or metamorphoses.

These metamorphoses, though in reality to be regarded as transitions, or stages of growth and development, are nevertheless sufficiently remarkable to call for minute attention, and in the lepidopterous tribes are very conspicuously portrayed. No one could imagine *prima facie* that a caterpillar adapted only for clinging to or crawling upon a leaf, would ever be able to throw off his green vestment and heavy prolegs, and attired in a totally different manner, fitted for celestial excursions, be addressed with propriety like the dove of Anacreon—

——— “Winged courier of the sky,
Whence? and whither dost thou fly?”

Such an idea would be dismissed as absurd and fabulous, did not experience prove it to be actually correct. But when we attentively examine the subject, we cannot but be convinced of the admirable arrangement and wisdom this contrivance displays. Were caterpillars always to remain such, they would become a greater plague than the locusts, or any pest that visited the Egyptians. Vegetation would be destroyed, trees and plants would entirely perish before the scourge perpetually upon them, and no vegetable food would remain for the subsistence of man. Even now, with the present constitution of things, caterpillars occasionally swarm in such immense numbers as to render them, for the time, a great pest; but having completed the allotted period of their existence in the caterpillar state, they become pupæ, devoid, in most instances, of apparent life or motion; they leave the plants they so lately devoured, and soar glittering through the air, the bright-winged butterflies we so justly admire.*

* I am quite aware that I am here recapitulating what is now known to every babe in Natural History. Still, in taking a general survey of insects, it was necessary to allude to this remarkable feature in their history—the changes of external form, marking the progress of their development. I imagine there must still be numbers in the generation passing away who are imperfectly informed upon these points; for when I was a schoolboy, I well recollect in searching among the currant trees in my grandmother's garden, I used to find numbers of chrysalises of the Magpie Moth, which, banded with yellow, and moving their apparent tails when touched, alarmed me much, so that I took them for a kind of wasp. In those days, Natural History was never heard of as a branch of knowledge deserving general study, and I left school firmly persuaded that bees might be manufactured after the approved receipt of Virgil. 'Tis true many happy hours in woods and fields have since kindled an enthusiastic fire which I might not have felt had these things been earlier understood, but I have often thought what painfully idle hours in early childhood might have been delightfully filled up, could such works on Natural History as we now daily see have been put into my hands. The *Systema Naturæ* of Linnæus now seems but a fragment in comparison of discoveries since made, and how ought future naturalists, with the ample materials they now have before them, to eclipse their predecessors.

I shall now briefly pass in review the changes exhibited in those orders of insects best known, using the names employed in almost every system, without here unnecessarily troubling myself with the details of any.*

We are now become so familiar with the transformations of the Lepidopterous or Moth and Butterfly tribes, that I need not enter into any lengthened detail respecting them; but if you desire to observe these for yourselves, I do not know that you can do it easier than with the *Bombyx potatoria*, or Drinker Moth, so called from his being a member of the Toby Philpot fraternity. You may frequently observe the caterpillar habited in a fine dark velvet coat, with brilliant yellow facings, reposing on a dry stick at the bottom of a hedge. Capture and feed it with the rough grass usually found in ditches, occasionally treating it with a drop of genuine mountain dew, for it is really a "drinker" as the name implies, and it will soon amuse you by doffing the old skin, and forming itself a comfortable warm cocoon, another term for a fur-like chrysalis. Here it remains a fortnight or more, finally "coming out" a brisk, fluttering orange-and-brown moth.

In China, it is a favourite occupation of the ladies, who can scarcely balance themselves on their small feet, to superintend the rearing of the many fine species of the papilio race found in that country, many of which are very large and beautiful. Cages are formed there for the reception of the perfect butterfly.

In the dipterous, or two-winged flies, the larva is termed a maggot, having no articulate or prehensile feet; and generally preying on decayed animal and vegetable substances. The house and flesh fly (*Musca domestica et carnaria*) are well known familiar instances; I shall therefore refer to the history of the gnat, as more particularly meriting attention. Its larva is an inhabitant of the water, and consequently needs some contrivance to breathe, in the absence of those spiracles which are allotted to its land brethren. For this purpose a slender tube is attached to one of the posterior rings of the abdomen. The extremity of this tube is surrounded with a fringe of hairs, which, when expanded, enables the larva to float upon the surface of the water, and when it descends, the hairs shut round, enclosing a silver bubble, which enables it to dive at pleasure till its stock of air is exhausted. When it assumes the pupa state, it loses this curious apparatus, and respire by two horns placed on the head; and as a perfect gnat, again changes its breathing apparatus to respire through spiracles. In about ten days after the

* It is to be regretted that no work can be recommended to the student as containing a perfect synopsis of British Entomology, on a moderate scale. Of course all who can will procure the admirable works of Curtis and Stephens. The class "Insecta" in Cuvier's Animal Kingdom, by Griffiths and others, as well as Samouelle's Guide, and the recent "Grammar of Entomology" of Mr. Newman, may all be consulted with great advantage.

larva has become a pupa, it prepares to emerge into the air;—but how is it to accomplish this without wetting its wings, which if it once does, it perishes. The process it performs for the accomplishment of this is very curious. The moment the head of the pupa is raised above the water, it bursts, forming a cavity, from whence the gnat within gradually puts forth its body, which rises like the mast of a barge, after the vessel has passed beneath a bridge. Thus the pupa is now a boat, the gnat the mast and sails; and it frequently happens that an unfortunate gust of wind upsets the inexperienced navigator. But in general, when almost emerged, he gradually lowers himself so as to touch the water with his feet (for this faculty of walking upon the water still remains to him), and stretching his silken pinions, he flutters away to join the myriad bands of his companions, whose dark squadrons seem to rise like clouds of smoke curling in the air to a great altitude.

The hymenopterous, or four-winged insects,* though often living in social communities, pass through transitions of growth, as well as the other tribes; but their economy is more interesting. When a female or winged ant becomes a widow—

“The world before her where to seek
Her place of rest, and Providence her guide;”

her situation excites commiseration—and should a party of working ants meet her, they offer their condolence, and escort her to a habitation. Previously, however, to entering upon her duties, she renounces the frivolities of the world, and with her own hands (if we may use such a term) severs from her body the wings that adorned her bridal festivities, and descends to the gloomy retirement of her subterranean cell. Here she acts as the unseen but politic director of all the movements of the ants. The workers take charge of her eggs, and as soon as the young grubs emerge, feed and attend them with the greatest care, carry their pupæ daily to the exterior of the nest for sun and air, and perform every duty of faithful guards and loyal subjects. When it is evident that the pupæ (or ant-eggs as they are vulgarly but improperly termed) are ready for their change, the workers, or nurses, very carefully separate the integuments of the head with their mandibles, set the young insects at liberty, feed and caress them, and make every effort to detain them in the nest. But when they find all their endeavours useless, as the winged myriads are now ready for their great annual immigration—

“The tender nurses running to and fro,
One last caress, one last embrace bestow;
One moment linger, by affection bound,
Where these dear objects left their native ground.”

* The *Coleoptera*, or Beetles, are technically stated to have *four* wings, but with no more propriety than it would be to say an officer wore *two* swords, merely because his naked blade had a *sheath*.

Bees, whether solitary or social, deserve particular attention among the Hymenoptera. They all pass through the usual transitions from the larva to the perfect insect. Hence, in fact, it is the object of every insect arrived at maturity, to provide apartments and food for the future family instinct bids them to expect, and discarding all tales, we must view them as strictly devoting all their energies to this purpose. Thus the "carpenter bees" form a number of cells in old posts and decayed timber, in each of which they lodge an egg, in a mass of honey and pollen—a store for the future larva.* The "mason-bees" construct their cells upon walls; and the leaf-cutting bees burrow caverns in the ground, which they line with rose-leaves, singularly cut out for the purpose, and some species adorn their cells with a scarlet tapestry from the poppy. All these bees consist of two kinds of individuals only.

Among the social tribes, however, a third kind, and the most numerous appear, about whom many disputes have arisen. They are commonly called "workers," but it appears that they are really females, though never destined to produce ova. As the queen bee lays an immense number of eggs, it appears that one mother is amply sufficient for the purposes of the hive, and she herself is so sensible of this, that the appearance of any other is the signal for a murderous attack on her part; and even when a young queen arrives at maturity for the purpose of leading forth a swarm, the workers keep her concealed from the old governess. If, however, the queen dies, the workers are enabled by giving additional food to and enlarging the cell of a working larva, or imperfect female, to enable it to assume the functions necessary for the queen of the swarm. Huber ascertained that even the working bees, or imperfect females, are divisible into two classes—the "nurse-bees" who collect the honey and feed and attend upon the young grubs, and the "wax-makers," by whom the materials for the combs are secreted. When the "wax-makers" are fabricating their material, the "nurse-bees" alone make excursions for honey and farina, supplying the others with the necessary sustenance. The researches of Huber merit the highest praise, and to him we are principally indebted for our more perfect knowledge of the proceedings of the bees in their miniature cities, and his labours have shown many of the statements of Aristotle and Pliny, as well as the more poetical pictures of Virgil, to be erroneous.

* It must have been one of this tribe who annoyed a very observant, careful, and energetic gentleman of my acquaintance, by *tampering with his locks*, and making him shrewdly suspect the advice often now seen in advertisements, to "*look to your locks*," was not in his case to be slighted. The garden gate could not be unlocked!—the key would no longer turn in the wards! some one must have been at it, and it seemed probable that the "forty thieves" were about, or that some dark plan was in agitation for plunder and rapine! A watch being set upon the gate, some bees were at last seen to enter the key-hole of the lock, which they had considered well adapted for the shelter of their cells, and the obstruction they had made had prevented the key performing its duty.

Before quitting the Hymenoptera, I must advert to the proceedings of the *Apathites*, or cuckoo bees. These insects are the very reverse of the industrious bees, for they spend their whole time in pleasure and idleness, never collecting honey, making a nest, or attempting any thing of a useful nature. These swindling insects, as we may appropriately term them, very much resemble other bees in outward aspect, and seem mistaken for members of the social community. These intruders, when they find it necessary to provide for a young family, lay their eggs in the very same cells where the bees of all the various species before mentioned have provided a store of honey and pollen for their own young grub, little aware of what is to follow. The egg of the intruding insect, as in the analogous case of the cuckoo, soon produces an offspring larger and more powerful than the rightful occupant, who is compelled to starve, while the young intruder feasts luxuriantly, and having passed his metamorphosis, proceeds to enact the same remarkable though dishonest part by which he himself entered upon life.

Rennie mentions an *Halictus*, a species of bee which is seized upon in a living state by the solitary wasp (*Cerceris ornata*), who sting them, and place them in holes which they mortar up for the sustenance of their young brood. Many of these wasps, for the same writer observes, "are of essential service to agriculturists, by provisioning their nests with destructive weevils (*Curculionidæ*), so injurious to orchards and nurseries."* But these wasps, after having been thus successful in their marauding efforts, and after mortaring up their nests as they hope safely, are themselves robbed of the fruits of all their toils, by certain Ichneumons, who with long onipositors pierce their bulwarks, and intrude a parasitical race to devour the grubs of the embryo wasps.

Such an extraordinary connexion exists among nature's works, that almost every insect appears to have an enemy deputed to watch its operations, and prevent its too great increase; and in many cases the spies, if we may so term them, are themselves under espionage. Even the little brilliant green *Cynips rosæ*, that forms the beautiful moss-apples upon roses, has a parasitical foe that penetrates its castle, and makes use of its labours for its own purposes—so that a host of Ichneumonidæ often issue from the habitation of the Cynips. The villain spider himself, after a long course of butchery, is not exempt from an hymenopterous foe, who seizes, stings him, and consigns him to a dark cave, to form a living banquet for his carnivorous young.

Coleopterous insects (the Beetle tribe) have frequently a longer life allotted them in the larva state than other insects. Thus the cockchafer (*Melolontha vulg.*), so familiar to us as filling the air in the evenings of a genial May, has attained the fifth year of its existence when its drowsy hum sounds upon the breeze. For the previous period it had existed as a grub, feeding upon the

* Rennie—"Insect Transformations."

roots of grass, and when not kept within due bounds, doing considerable injury to the meadows. The sacred *Scarabæus*, or beetle of the Egyptians, was venerated by that superstitious but extraordinary people on account of the singular instinct displayed by it in preparing a nidus for its young; and its figure is well known to all those acquainted with the hieroglyphics on the monuments of Egypt.

The Orthoptera and Hemiptera, including the crickets, grasshoppers, cicadæ, mantidæ, aphides, &c. present an exception to the usual transformations of insects, as in all their stages they are active and voracious, and of similar form. They have no quiescent state, and their whole existence between the egg and the imago consists of a gradual series of approaches to perfection. Before dismissing these, however, the extraordinary individuals comprehended under the genera *Locusta*, *Mantis*, and *Phasma*, popularly termed "walking-leaves," demand a moment's attention. As the orchideous plants, the bee and fly-flowers, seem to connect plants and insects by their singularly formed blossoms; so these insects present the same remarkable similarity to the leaves of plants. Their wing-cases so closely resemble in colour and texture, and even in veining, fresh fallen leaves, that practical botanists might be deceived by them; and others, a celebrated author observes, might, after the closest investigation, be affirmed to be nothing but a dry leaf. Sparmann relates, that while resting himself beneath the shade of a tree in South Africa, a leaf dropped to the ground, which on going to secure as a specimen, it at once assumed animation, to his great surprise. Various species of these insects represent the leaves of the laurel, myrtle, citron, lily, sage, olive, camellia, thyme, and grass.

"As verdant leaves that silent flutter round,
Wafted by zephyrs o'er the flow'ry ground;—
So from the trees these *Mantidæ* arise,
And seem to wing unconscious o'er the skies;
Or cloth'd in autumn's sober tints they stray,
And drop as wither'd scions from the spray."

Neuropterous insects, of which the splendid dragon-fly is a good type, pass through the usual transformations, and exhibit a very singular structure. The larva of the dragon-fly (*Libellula*) is an inhabitant of the water, moving along by the impulse of an internal apparatus, which, like a syringe, sucks in and expels the water, and one of them taken out may be seen amusingly to squirt the water out of it to a considerable distance. A moveable mask covers the face, which is armed with formidable mandibuliform plates, which are stretched forth to seize upon such aquatic insects as are unfortunate enough to get within its power. When it leaves the cool depths of the water for the regions of air and light, it mounts an aquatic plant, gradually extricates itself from the pupa, and with a brilliant

mailed body and expanded wings, enjoys the glories of the new world it has entered upon. The dragon-flies are the most splendid and beautiful of British insects; their motions and evolutions combine elegance with celerity, while, as far as we are concerned, they are perfectly innoxious. They appear only in bright weather, when the sun darts forth its hottest rays; with expanded wings, excelling in texture the most delicate lace, they seem to drink up the fervid radiance, while the colours of the iris flash upon their polished cuirasses as they urge their graceful but impetuous flight. View that noble insect gorgeously arrayed in yellow vest—'tis the *Libellula grandis*—worthy of his name, observe him like a satellite performing his revolution round that rushy pond, nor pausing a moment o'er the liquid mirror but to seize some insect that disturbs his reign. That pond is to him a kingdom, there he reigns supreme, and his rapid wing leaves no part of its surface unexplored.

We will now turn down this sand-stone lane, and shroud ourselves from the sun-beams beneath the oblique shadow of the bending wych-elm, whose trunk sloping from the treacherous sand-stone, is yet abundantly protected by the enormous buttresses of roots, that curl among each other like a knot of snakes. What rush was that? the magnificent *Libellula varia* bright with the combined splendour of yellow, green, and the blue of heaven on its radiant vest, swifter than the swallow, darts before us. And whilst threading every labyrinth of the tree above us, how inexpressibly brilliant its cærulean spots appear contrasted with the light green above them, and the deep green of the leaves. Now turn to the river where among the tall grass and reeds, those most beautiful of all the tribe, the demoiselle-dragon flies,* with vests of the deepest changing green and purple wings, are fluttering over the sparkling water. Well might Chateaubriand compare those fairy-like insects, the resplendent blue-green of whose robe no pencil can copy, as their metallic lustre contrasts with the pure tiaras of the white water-lily, to a humming-bird of the Floridas on a rose of Magnolia.† Nor, as we close the picture, can we leave out the bands of minor *Libellulæ*, whose slender and delicate folding tubes sparkle as they fly with azure, white, and the various shades of pink and rose.

The Ephemera or May-fly offers an anomaly in its transformations different from all other known insects. After its larva has attained maturity, it ascends a water plant, when the skin bursts, and the pupa itself actually flies away. However, in twenty or thirty minutes, it again settles on some convenient spot, where it casts its skin, and the real perfect insect then appears. The brevity of life is well exemplified in the history of the *Ephemera*. As the broad red sun descends to the horizon,

* *L. virgo*.

† Chateaubriand's *Genius of Christianity*.

intermingling a blaze of glory with the nodding branches of the willows, which dances in mazy curls upon the rippling river—as its radiant disk sinks behind the dim blue hills,—in countless myriads squadron after squadron pour forth the bands of the *Ephemera*. The sun sets—a mist obscures the surface of the river, and the air is filled with a living cloud, dark as the darkest folds of the robe of night.—Dim and dubious twilight in a long line rests upon the hilly outline in the east—bats are flisking among the willows—silent and sullen flows the current of the river—the morning star faintly quivers in its eddies.—But where is that ephemeral cloud—where the countless insects whose murmur of unnumbered wings gave a voice to the evening?—All are extinguished! the sweets of that transitory existence are over—life has been ended ere well begun.

I ought here to mention the *Phryganide*—whose larvæ inhabit very singularly constructed mansions made of leaves, sticks, and even shells, with their inhabitants within them. Here, too, we have a geological link worthy attention; for Mr. Lyell mentions a rock of fresh-water lime-stone in Auvergne, France, composed entirely of the cases of a large species of *Phryganea*, which “swarmed in the Eocene lakes of Auvergne.”* The cases are of course abandoned when the perfect insect ceases to be a “lady of the lake,” and leaving her singularly formed boat, becomes thenceforth a denizen of the air.

The transformations of insects have been considered if not to indicate a change in the nature of man, yet as shadowing forth the possibility of our future state being exceedingly dissimilar to our present one, without altogether losing sight of our identity. The larva of the gnat breathes as I have shown by a very different apparatus to that of the perfect fly, and although man now finds a rare atmosphere unfitted for his existence, we may easily conceive that when the necessity for a material habitation for the soul is at an end, we may have powers allotted us of which we can have now but a very imperfect idea; but with these powers, whatever they may be, we shall assuredly retain the faculty of memory. The wonderful economy and contrivance insects display has been usually ascribed to a blind instinct, that allows them no choice; but this appears to me to be incorrect. Memory is generally allowed to the perfect insect, and why not then to the animal in all its states? This would in some measure solve the mystery; and we all know how powerful memory is in early life. We can indeed, understand the instinct that prompts the infant to smile in its mother's face, and seek the breast that imparts its nutriment; but without memory no instinct would enable a man to find out the scenes of his early existence, or induce him to return to the land of his birth. Instinct, then, I will allow, causes the young caterpillar to feed upon the leaf his parent has placed him upon; and the aquatic larva to swim in the water in which he finds himself, and to partake of the food

* Lyell's *Principles of Geology*, Vol. 4, p. 100. 3rd edit.

he sees before his view; but a stronger impulse, I infer, must lead the butterfly to leave the flowers for the nettles; the bee to construct her cells with laborious care; and the gnats and other insects which float in air to lay their eggs in that water which would be fatal to their own existence. This faculty I presume to be memory, or a near approximation to it, and if we admit that the insect in its perfect state, remembers its former adventures, it must necessarily infer that its own progeny will have to pass through the same vicissitudes.

I had intended to enter upon a review of the various systems of Entomology proposed by learned investigators, descanting upon their several merits, and recommending those best adapted to practical purposes; it is perhaps fortunate for me that I have not now either time or space for the purpose—since systematists rarely forgive any attack upon their favourite structures.—I therefore recommend the student, to think, read, judge, and act for himself, taking the benefit of whatever systems he may find, and concoct a new one for himself if he should think such a project advisable. It will be well, if he do build a hive, that no rude bear overturns it for him.

And now, is it possible, that after flying about like an insect among meteors in the air, and amid forests and flowers;—that my own flight must at last cease? Yes, sad to say, I must be now pinned down and consigned to the cabinet.—Well, then, as I can buzz on easy wing no more, permit me, fair readers of the Analyst, for such there are, to droop my antennæ before you in token of a last adieu. For your bright eyes I exist no longer—if we do meet again it will be on other ground—in other climes. We have met among fragrant flowers—we have held converse beneath the broad canopy of aged trees, who could have told us of others who had sought that sweetly solemn shade before us, and dreamed as we have dreamed. All is over—we must dream no more. We have gazed together upon the midnight sky—nought disturbed us but the breeze rustling the topmost boughs of the elms—as we gazed upon meteors flashing silently in the deep blue zenith, no sound met our listening ears—for the Nightingale had flown southward, and the watch-dog slept. Man and all his busy schemes lay for a moment in abeyance—if then but for a moment, Nature charmed us when her voice awoke not, let us seek her shrine—we may part for ever here—let us again meet there and mingle our orisons. To you, grave and learned votaries of science, if such have glanced over my remarks, pardon my aberrations—excuse those fanciful allusions, which I have perhaps indulged in with too unrestrained a license. In this respect I must take my own course, and wander like the brook—to sleep beneath the hanging wood, or dash careless in the rocky rapids. I shall at last, perhaps, with steadier aim approach with broader waters the ocean where all our efforts terminate. If so, we shall meet again—perhaps graver and sadder, to con over our mutual labours—if not, why then “this parting was well made.”

REMARKS ON PHRENOLOGY, AS APPLIED TO EDUCATION.

"Seek you to train your fav'rite boy?
Each caution, ev'ry care, employ;
And, ere you venture to confide,
Let his preceptor's heart be try'd;
Weigh well his manners, life, and scope;
On these depend thy future hope."

EDUCATION has always received a large share of attention from philosophers, and everything has been tried which the learned, the eloquent, and the experienced could suggest for its facilitation. How is it then, it may be asked, that while machinery, rail-roads, and steam-packets have been brought to so high a degree of perfection, that the art of developing the human faculties should have baffled human ingenuity for the last two thousand years? The answer is easy—the philosophy of the mind has not been understood. A new era has now, however, commenced, which may be dated from the discovery of Gall, and the dissemination of the fruits of his observation, in 1796. This discovery—this invaluable, unparalleled discovery—has been ridiculed, derided, trampled on—its expounders have been loaded with every degrading epithet the most unlicensed vocabulary could furnish; they have been insulted, reviled, and calumniated—not merely by small witlings, and *press hacks*, but by names which adorn the temple of Fame; and yet the science is at this moment more flourishing than ever—the united efforts of learning, wit, and eloquence have been and ever will be ineffectual to pull it down. In spite of every interested effort of the ignorant and the prejudiced to retard its progress, it is "gradually winning its way into general respect and admiration."*

The first consideration is whether phrenology be founded in truth. No unprejudiced person who has read the highly interesting and valuable work of Dr. Gall,† and made observations of his own, can have any doubt upon this point. It only remains, therefore, to discover in what way it can be applied to our advantage. Not long ago, hearing a friend talk scornfully of phrenology, I remarked that if it bestowed no other advantage on the human race it would render education much easier and more profitable to the pupil. To which he rejoined, "I do not see that." What should

* See page 336.

† "Sur les Fonctions du Cerveau," 6 vols. 8vo., 1822. To those who have not leisure for such minute details I should recommend the "System of Phrenology" by George Combe, now in the third edition. As the best work on education with which I am acquainted, I should recommend Simpson's "Popular Education"—a work which is, as Leigh Hunt remarks, indispensable to every lover of his species who can afford to purchase it.

we think of the farmer who maintained it to be useless knowledge to be conversant with what kinds of grain or roots would thrive in such and such soils ! And if this kind of knowledge is universally admitted to be useful, nay indispensable, of what vital importance must it be for teachers to know what kinds of instruction may be given with the greatest advantage to each pupil, for they may rest assured that "as they sow so shall they reap."

It is an axiom in phrenology, that it is impossible to create any faculty—all that the teacher can do is to strengthen those which his pupil possesses. Thus phrenology is of inestimable value in indicating those faculties which are very defective. These being ascertained, the teacher will avoid the irksome task of attempting to drag the pupil after him in subjects with which Nature never intended him to be proficient. The "Phrenological Journal" contains an account of a girl who had no taste for music. Notwithstanding this defect masters were employed to teach her the art ; great pains were taken, but without success ; music was not only indifferent to her, but absolutely painful ; the finest chorusses of Handel, the swelling peals of the organ, the thrilling harmony of the orchestra, all produced distressing sensations. In this instance the organ of harmony was very deficient, and therefore it was a folly to attempt to impart a taste for music.

But if the organ instead of being very deficient, is moderately developed, it is advisable to cultivate it, and, by judicious management, to strengthen and enlarge it. The pupil, of course, will not advance so rapidly as he who has the faculty strong, but the phrenologist will at once perceive the reason, and will see the folly of punishing the tyro for his comparatively slow progress, and making invidious comparisons between him and his more fortunate companions. This system of making comparisons is a most baneful but a very common practice, in the routine of teaching. It is baneful in relation to the pupil compared, as tending to rouse his animal propensities ; it wounds his self-esteem, and his approbateness, which in their turn arouse combativeness and destructiveness, to be revenged on the favourites of the teacher ; and if the boy happens to be younger or weaker than those whom the injudicious conduct of the master has rendered objects of envy and jealousy, secretiveness will be called into play, in order to obtain that revenge by stealth which would be impracticable openly. And it is baneful with regard to those with whom he is compared, as unduly encouraging their self-esteem and approbateness, and puffing them up in their own conceits, and teaching them to be proud of (what is no merit of theirs) having superior powers. Superior powers of mind spring from a superior organization of brain—and surely no one will maintain this to arise from any merit in the possessor ; the original size of the brain and conformation of the head are produced by circumstances before birth, over which the owner had no control.

We thus see what a number of opposing faculties are called into action by the ignorance of those who *ought* to "train up a child in

the way he should go," but who too often adopt a different course. Even if the above-mentioned plan of making comparisons were productive of beneficial results in an intellectual point of view, the moral evils engendered thereby would render it unjustifiable. But when, as the phrenologist knows, it is mischievous both ways, and is unproductive of a single counterbalancing advantage, the amount of evil produced is incalculable.

I think it may safely be affirmed that if a pupil does not advance in his studies, or does not advance so quickly as is expected, the fault is never his own. This assertion will, no doubt, startle many persons, and more particularly teachers, but it admits of proof, and I shall here give a quotation in point from the "Phrenological Journal:" "A man believes that three times three are nine, in consequence of his faculty of number perceiving the relations of these quantities; but if in him the organ be very small, and the faculty in consequence weak, he may have great difficulty in finding out how many fourteen times nineteen are. Suppose we wish to convince him that the amount is two hundred and sixty-six, we must lay before him the simplest elements of the calculation, and advance step by step till he see it as we do. If he fail in attaining the right result after all our pains, the proper inference is either that we have not been sufficiently explicit in our demonstration, or that his faculty of number is so weak as not to be able to comprehend the computation. If the first has been the cause, we must bear the blame ourselves; if the second, we ought to avoid in future placing that individual in a situation where the power of calculation is necessary to the discharge of his duties; but in neither view is it proper to scold him for the disappointment that we meet with."* If teachers were generally impressed with views like these, what a different thing education would be, both to master and scholar! But, unhappily, it is otherwise. The former is too apt to cloak his incapacity for teaching by pronouncing the latter to be incapable or unwilling to learn. But, it will be said, there are cases in which wilfulness and obstinacy on the part of the pupil really exist. I admit that there are, but a skilful teacher, by firm yet mild treatment will be able to subdue and eradicate this unhappy disposition, or else it results from the organization of the boy, in which case he is not responsible. I should suppose this kind of conduct to result from over-large self-esteem, combativeness,† destructiveness, and firmness, with perhaps small conscientiousness; and it is as impossible for a person with this organization, (especially if the intellectual and moral organs be moderate) to be otherwise than naturally haughty, quarrelsome, riotous, and obstinate, as for another with those organs small to be otherwise than meek, peaceable and yielding. I contend, therefore, in every case in which the pupil remains stationary, or advances but slowly, the

* Vol. III., page 310.

† Mr. Cox proposes to call this organ *Opposiveness*. See an excellent article of his on the subject, in the "Phrenological Journal," No. 42, (vol. IX., p. 147.)

cause must be referred either to the ignorance of the teacher, or to the mal-organization of the pupil's brain.

I have given an example in which the non-progression of the pupil was referable to a deficiency in organization; for the girl alluded to had excellent teachers, and an excellent disposition. I shall now give an instance in which the fault rests with the instructor. Out of the very many examples which I could give, both from reading and from observation, I shall select one from No. IV. of the "Phrenological Journal," a quarterly periodical of great ability and sound views, replete with amusement, interest, and instruction. The subject of the second article is a boy of an active spirit, combined with much good-nature. "When sent to school to learn to read, he made little progress; and afterwards, when an attempt was made to teach him Latin, he stood absolutely still. His father and mother were almost in despair lest he should turn out destitute of capacity for any liberal pursuit. As a last resource they sent him to board with a celebrated teacher in the country; but here he made as little progress as before; he could not be brought to comprehend a single rule of Latin, and scarcely was able to master three sentences of French; in geography and arithmetic he was very little more successful. In this state of matters Dr. Spurzheim arrived in this country, and a gentleman who attended his lectures imagined that the case might not be so hopeless as was conceived. He examined the boy's head, and declared that the mystery was cleared up. He found the organ of language very decidedly deficient, and the perceptive organs in general not large; while the reflecting organs were far above an average in point of size, for that period of life. Combativeness he found rather small, while cautiousness, conscientiousness, self-esteem, love of approbation, firmness, adhesiveness, benevolence, and ideality were all amply developed, and destructiveness was not deficient. He advised, therefore, that the youth should be taken from school, and sent for three or four years to learn the trade to which it was intended to bring him up; and that, thereafter, at the age of seventeen or eighteen, his education should be begun anew. This was accordingly done, and with the happiest effects. *His studies were now directed entirely according to his development.* He was absolved at once from all drudgery with Greek and Latin. He set to master the French language, and could read a French author with facility. His other studies were geography, algebra, and mathematics, and in these also he now took pleasure, and stated distinctly that he saw the *principle* and application of them. His next course was chemistry, natural history, natural philosophy, and anatomy; and the pleasure with which he followed the lectures on these branches of knowledge, was intense, and his improvement proportionately great."

To this imperfect outline of the interesting article I would gladly subjoin the highly sensible and instructive remarks of the youth himself, describing his feelings before and after his acquaintance with phrenology, but must omit them for want of space. How-

ever, I earnestly entreat all those who take any interest in the improvement of the human mind, to turn to the first volume of the "Phrenological Journal," page 505, where the original article will be found.

The small progress made, in this instance, by the boy under his first course of training, was clearly referable to the want of tact in those who ought to have been his instructors. And had it not been for the new lights afforded by phrenology, they would have proceeded in the same track of irksome labour to themselves, and unutterable anguish to the pupil.

An individual who has been entrusted for many years with the education of a large family, on being asked by a lady whether he was a believer in phrenology, after much hesitation answered—"Why—why, Madam, I'm wavering." By his expression at the time it was easy to see that he was ashamed to confess the plain truth that he was opposed to phrenology. There are some minds naturally so warped and contracted that they cannot see phrenology in any other light than as a "lump and bump" affair; to which class the person above alluded to belongs.

The following sound advice, given to teachers in general, is extracted from an excellent little work on education, by Mr. Abbot, whose views on this subject are perhaps as perfect as views on education possibly can be without the illuminating influence of phrenology;—"Never get out of patience with dulness. Perhaps I ought to say *never get out of patience with anything*. That would perhaps be the wisest rule. But above all things, remember that dulness and stupidity—and you will certainly find them in every school—are the very last things to be out of patience with. If the Creator has so formed the mind of a boy, that he must go through life with difficulty, impeded by obstructions which others do not feel, and depressed by discouragements which others never know, his lot is surely hard enough without your adding to it sarcasm and reproach."*

How very common it is to hear parents and masters, when a pupil is backward, exclaim and repeat with great emphasis, "There must be the will—nothing to be done without the will." True, very true; but how is the will to be got. It seems to me that the asserters of these profound truths expect their pupils, by some magic, to become anxious to acquire that which is naturally distasteful and repulsive to them—or perhaps they think that the frequency of the repetition will impart this indispensable "will." However that may be, it is certain that they expect the pupil of his own accord to gain this much desired will, and, like all those who found their expectations on false grounds, they always have been and always will be disappointed. Those who are naturally idle are no more to be reproached for that failing, than the studious are to be lauded for their diligence. All that the master has to do is to

* The "Teacher," p. 124.

increase the power and activity of such organs as are naturally sluggish, to bridle and repress those which are naturally too strong and active, and to direct such as are likely to go astray. But there is certainly no room for praise when a pupil has a relish for his studies, any more than if he has a relish for an apple tart; the studies are pursued with avidity for the same reason that the apple tart is swallowed with satisfaction—namely, the pleasure which it yields. In the same way, if a person is very obliging and compassionate, his acts of benevolence do not properly admit of praise, inasmuch as they are rewarded by an innate pleasure arising from the very act of doing good implanted in him by his Creator; and what is there to praise in the act of procuring for oneself pleasure? That delightful ornithologist, Wilson, seems to have understood this; speaking of the motives which induced him to undergo the perils, toils, and hardships, of his romantic ornithological tours in North America, and to undertake an extensive and laborious work on ornithology, he says—"Biassed, almost from infancy, by a fondness for birds, and little else than an enthusiast in my researches after them, I feel happy to communicate my observations to others, probably *from the mere principle of self-gratification, that source of so many even of our most virtuous actions.*"—Introduction to "American Ornithology." If instead of saying *so many*, he had said *all*, he would have spoken the whole truth.

The benefit conferred on the human race by the dissemination of phrenology, is like the refreshing and reviving influence of some great river overflowing and irrigating the surrounding meadows, which were beginning to become parched, like the mighty Nile dispersing its enriching favors far and wide. Its influence is as varied as its scope is extensive, and in promoting all the advantages which have sprung and will continue to spring from it till time shall be no more, none will have contributed more than the third and greatest triumvirate—GALL, SPURZHEIM, and COMBE.

S. D. W.

June, 1835.

TO FRIENDSHIP.

IMMORTAL Friendship, loveliest of those ties
That knit our fallen nature to the skies;
Without thy influence, through the world we stray,
As the lone wanderer of a weary way,
Who seeks in vain for e'en an humble shed,
To rest his limbs, and ease his aching head.
So 'reft of thee no kindred breast we find
To share the burthen of a troubled mind,
No friendly word, no sigh responsive given,
No pitying tear, the kindly dew of heaven,
Till crush'd by sorrow, overcome by pain,
Breaks the sad heart, nor breaks to heal again.

J. P.

ON THE NOMENCLATURE OF BIRDS.*

I WAS by no means surprised to perceive in the last number of the *Analyst*, that my proposed alteration (though a very slight one) in the English nomenclature of birds, was considered objectionable by your correspondent. I am well acquainted with the views of Mr. Strickland on this subject from his paper in the *Magazine of Natural History*, which, in my opinion, does not contain one sound argument in favor of his statements. On this occasion I shall confine my remarks to his paper in the *Analyst*.

Mr. Strickland says, at p. 317, that the English names of birds "are consecrated by usage as much as any other part of the English language,† and consequently when we speak of an Hedge Sparrow we are much more likely to be understood than if we call it an Hedge Dunnock, though I willingly admit that it is *unscientific* to give the same generic name to an *accentor* and a *passer*." I am sorry that Mr. S. belongs to that unimproving class who consider that "whatever is, is right." If every one were of the same opinion, the world would never advance. As to the name Hedge Sparrow being better known than Hedge Dunnock (although the bird goes by the latter name in many parts of England), that is possible enough; but it is the business of the scientific Naturalist to reform these abuses, and to substitute proper names for those which are erroneous and unscientific. Why Natural History should be doomed to possess so loose and unscientific a nomenclature, while that of all other sciences is so exact and precise, I am really at a loss to determine. I remember that when I first entered on the study of Ornithology, I actually supposed the "Bull Finch" to be a true Finch;‡ and is this to be wondered at? I had heard that every bird had a generic and a specific name, and, therefore, it was quite natural to conclude that the generic name indicated the genus to which the species belonged; how grievously I was mistaken, the works of any modern Ornithologist will amply testify.

The number of naturalists (field naturalists especially) is now so great, that were the proper English names given in all standard ornithological works, the multitude would insensibly follow in the steps of the professor. For the amateur naturalist would use in common conversation such names as they had been accustomed to meet with in books. Thus the name *Gallinule* has now almost wholly superseded the absurd name "Water Hen." The naturalist should direct the multitude, and not the multitude the naturalist.

If Mr. S. objects to my name *Hedge Dunnock*, what will he say to that used by Selby, in his masterly work the *Illustrations of British Ornithology*; in both first and second editions that excellent naturalist calls this bird the *Hedge Accentor*. Now, although there is no scientific error in this name, yet it is, in my opinion, too pedantic for common use. Selby seems rather partial to using latin names in English; thus he has, the Egyptian *Neophron* (*Neophron percnopterus*), the Swallow-tailed *Elanus* (*Elanus furcatus*) the Goldcrested *Regulus* (*Regulus auricapillus*), the

* In answer to Hugh E. Strickland, Esq. Vol. II. p. 317.

† A gradual change is constantly effecting in every part of the English language.

‡ This is a general opinion amongst the vulgar. See Johnson's *Dict.* for a definition of "finch."

Hedge and Alpine Accentors (*Accentor modularis* and *A. Alpinus*), &c. It is evident enough that there is no essential objection to any of these names; still, however, it is probable that the generality of those who read works on natural history, would not adopt them. But who can object to the name Whiteheaded Forktail (*Elanus leucocephalus*, mihi), or to the beautiful and expressive name Kinglet (*Regulus*)?

Even supposing that the science of Ornithology did "not suffer by this incorrect (and Mr. S. allows it to be incorrect) application of English names," yet the difficulties thus placed, unnecessarily, in the way of the student, would sufficiently warrant the change of the names. Anything loose or unscientific is totally inadmissible in science. Science is surely sufficiently abstruse in itself, without heaping upon it inaccuracies which render it ten times more difficult! But to proceed.

Mr. S. observes that "the first and most important requisite in scientific terms is that they should be universally adopted, and hence the fathers of Natural History have wisely employed the Latin language as the source of their nomenclature, being generally understood by the learned among all civilized nations." It is certainly very important that scientific terms should be generally adopted, but before names become well known, the newly proposed one might be followed by the old and Linnæan name. It is essential to the improvement of Ornithological science that names—Latin as well as English—be frequently altered; for when a new system is proposed—and there are now few who advocate the Linnæan system—new names must necessarily be introduced, and as new systems are always propounded in works which it is essential for every scientific Naturalist to possess, there would be no fear of the names not being sufficiently known.

I by no means advocate—as Mr. S., seems to think—the *substituting* English for Latin names, but merely wish to effect a reform in the former, which has long been most grievously wanted. To say that "the science of Ornithology does not suffer by this incorrect application of English names," is evidently erroneous, and requires no comment from me. Mr. S. also speaks of "changes which are certain not to be universally adopted."* One or two instances will prove the groundlessness of this assertion; *Cinclus aquaticus* was formerly invariably called the Water Ouzel, and the Pipits (*Anthus*) were termed Larks or Titlarks; now, however, the former receives the name of Dipper, and the latter of Pipit, in Ornithological Works; and rarely do we now meet with the old names in the Natural History periodicals of the day. It is unnecessary to multiply instances.

The whole use of a system is, to facilitate the acquirement of Natural History; consequently this system should be as simple, and as free from errors as possible, in every part. This is a proposition which, I think, no one will deny, and I consider that the slight alteration in English nomenclature, proposed by me in a former number, greatly conduces to this important end. If I wished the science to remain stationary, then indeed I should say, leave the names as they are.

Temminck and Stephens, as stated in a former paper, are amongst those Naturalists who have paid most attention to this subject, and I have no doubt but that the *generally* correct nomenclature of the "*General*

* Happily for the cause of science, our Ornithologists are not of the same opinion as Mr. S. Thus Mudie gives the name Hedge Warbler to the Pettichaps; the translator of Bechstein's *Cage Birds* uses the name Dunnoek; and Selby introduces the following new names:—Longbeak (*Macroramphus*), Lobefoot (*Lobipes*), Swiftfoot (*Cursorius*), Thicknee (*Ædicnemus*), Hareld (*Harelda*), Garrot (*Clangula*), &c. &c. &c.

Zoology" has greatly improved the English nomenclature of birds. Whatever names are adopted in standard Ornithological Works will of course be used by amateur Naturalists, and finally by the public. Selby effected several good alterations in English nomenclature, but he seemed to be labouring under the erroneous impression that giving proper names would render his "*Illustrations*" unpopular.

Leaving this subject to the consideration of your readers, let us just glance at an article on "Vernacular and Scientific Ornithological Nomenclature," at p. 305. Not only are the principles inculcated in this paper sound, but they are carried into practice in a manner which has never before been equalled. The names there proposed are excellent, and especially that of the *Caprimulgus Europæus* of Linnæus. Your correspondent proposes to name it the Fern Nightjar (*Vociferator melolontha*.) This name is infinitely preferable to my name, *V. Europæus*, which, besides being rather a vague and inexpressive specific name, is erroneous, as there is another European species, the Rednecked Nightjar (*V. ruficollis*, mihi; *Caprimulgus ruficollis*, Temm.) The generic name of Linnæus and other authors was, however, what I most objected to. These remarks having already extended to a greater length than I originally intended, I here close my paper.

NEVILLE WOOD.

Foston Hall, Derbyshire, June 4, 1835.

FINE ARTS.

BY WILLIAM CAREY.

THE second Worcester Exhibition of the works of modern artists opened on Monday, the 15th of June, at the Athenæum. The number of paintings, drawings, and sculpture, is 228, of which only four are of the class last mentioned. There are twenty-six London exhibitors, who have contributed sixty-nine pictures and drawings. The twenty-six Worcester candidates for public approbation have sent 104 of their performances; four Birmingham exhibitors have six pictures; Pershore, Leamington, and Cheltenham have added eight from three artists; Bewdley eight, from a lady's easel; Derby two, from one painter; an Edinburgh professor one, and a foreign artist four, from France.

The show is highly to the honour of British genius, and there are, altogether, fewer inferiorities than last year. It is true Lord Northwick has not lent his powerful aid. There is no production from the masterly hand of Stanfield; no work of Roberts, the first painter of architectural views in Europe; nor is there anything from the inspired pencil of Etty, three artists whose admirable specimens, with Frazer's Antiquary and Teniers in his painting-room, constituted a most attractive feature in last year's exhibition. But then the works of Danby and M'Clise, two professional giants, who did not contribute last year, are a tower of strength in this exhibition. There is also a new and charming auxiliary in Charles Landseer. Fewer portraits and pictures of horses, dogs, and dead game are in this catalogue than are usual in the London and provincial exhibitions. I am grieved to see there are only five which can be classed under the head of *history*. A taste for landscape takes the lead; but it is a passion for local views, in which the British artists

have arrived at wonderful excellence. The higher order of landscape composition is but little patronised, and, therefore, but little cultivated.

The muster of so many Worcester contributors is greatly to the credit of their industry and honourable to their talents, although it cannot be expected that all are equal, and there are a few very inferior, such as we meet in all miscellaneous collections. Several of these candidates have already deservedly acquired a local reputation, and many are on the advance with a very favourable promise of speedy success. Their names, with the amount and class of their works, will be an interesting document for future reference, and I here insert it as such, without space, time, or health to notice particular excellence. S. Cole has one portrait (large, in oil); J. Clements six ditto in miniature; J. W. Slater four ditto, some tinted on paper; Jos. Taylor one ditto, in enamel; T. Edgcombe three local views; Henry Hill nine ditto, and one landscape study; H. H. Lines two Baronial halls, and twelve local views; J. Oldnall one ditto; Jos. Powell one landscape composition and nineteen local views; Wm. Wood six ditto; John Wood three ditto; J. Wood, Jun. two ditto; E. L. Williams one ditto; H. Whiting one landscape composition; J. Pitman a magpie entrapped, a buck's head, and four of horses and dogs; H. Eginton two architectural designs; J. Riches one ditto; J. Varden four ditto. J. Stephens (I believe the only resident sculptor) four busts. An impartial examination of these 104 performances is well worthy attention to show the state of the arts in this part of the kingdom. I think they will afford an unprejudiced amateur a fair opportunity of selection, and he will probably agree with me that the specimens of excellence are far beyond what might be expected from the patronage which the vicinity affords.

This cursory general notice is by no means intended or offered as a review of the pictures. Neither my present very severe indisposition, which renders any close application dangerous, nor my limits, restricted to this single communication on account of the change of "The Analyst" from a monthly to a quarterly publication, leave me the power to do more than furnish a brief record of the whole in the forthcoming publication for July. Under other circumstances, I would gladly point to the works of every exhibitor, as I did last year in my letters under the signature of Lorenzo; but as it is impossible for me to enjoy a similar gratification now, these few critical observations are written to draw the attention of the public to the splendid merits of the exhibition, and to promote the general interests of the arts as a great national concern, and not from any personal feeling for the artists mentioned, or against those whose works I am necessitated, sorely against my will, to pass in silence.

The "admirable Creswick" has two local transcripts; "No. 9—*A distant view of Battle, Sussex*," is every way worthy of his distinguished reputation. The force and spirit of the fore and middle grounds, the tender gradations in the going off of the distances, the truth of the local colouring, and the beautiful breadth of light and shadow, render this a model for a young landscape student. The touch is everywhere firm, and the definitions marked with delicacy and spirit. The group of cattle which a man is driving near the foreground, would not discredit the taste of Berghem, or du Jardin, and three figures sitting on a fallen tree, are happily introduced and painted with freedom. If there could be any addition to heighten the attraction of the effect, it would be a tall massive tree or cluster of trees on, or near, the foreground, to present a rich mass of shadow against the wide extent of sky.

"121—*Near Bedgellart, North Wales*," by Creswick, has merit, but

is mannered. A grey, wheyish hue extends over the greater part of the sky and landscape, and enfeebles the effect. Indeed, there is nothing like an attempt at *truth* of local colour or freshness in the whole. It was by the light, sweet, tasteful handling I, at once, recognised the master.

Charles Landseer has three admirable fancy subjects—"No. 176, *Bribery and Corruption*."—"And so if you will promise to come alone the next time."—"May be I will, and may be I winna," said Jenny—"but if ye get the dollar ye'll like it just as weel."—"I'll be d—n'd if I do," said Halliday, taking the money however." This is the scene where Edith Bellenden and her maid Jenny Dennison are applying to ranting Tom Halliday, the trooper, who is centinel over Henry Morton in the tower of Tillie-tudleim, for leave to have a stolen interview with the prisoner. Jenny is slipping the piece of silver into the trooper's hand. Her eyes are fixed on him, scrutinizing his features, as if not quite satisfied to trust him; at the same time there is a demure sly touch of quiet coquetry on her handsome countenance. Halliday is a tall powerful fellow, with his steel head-piece, and all the offensive and defensive costume of a life-guardsmen in the time of Charles II. ready, on the instant, for boot and saddle, to do the bidding of his officer. He is leaning against the inside of the porch, listening to Jenny, and eying her with the eager look of free-quarters, while he takes the bribe.

Edith Bellenden stands aside, with one hand resting on the massive oak door, and the other drawing close the plaid in which she is disguised as the kinswoman of Jenny. The artist's refined discrimination is marked by the modest concern expressed on her features. Her eyes are not directed either to Jenny or the centinel, but rather lowered, as a listener awaiting the issue. I cannot in any words give an idea of the exquisite expression of gentle trouble in that very lovely face. Although in the ordinary plaid of a waiting woman, her chastened air, and the mild dignity of her demeanour, indicate her superior rank. Jenny is a handsome buxom young woman, with an intelligent look, and nothing vulgar or rustic in her manner, yet her inferior grade is, at once, discernible when the eye passes from her to her mistress.

Perhaps no scene from any of Sir Walter Scott's novels has been better painted than this, or the characters better sustained. The whole of the picture is highly finished, even to the table cloth and other accessories. The carnations are warm, clear, and mellow, and the tender, delicate bloom of sixteen in Edith's complexion has the transparency and glow of flesh and blood, heightened by the agitation of her spirits, when the life of her lover hung by a thread liable to the doom of military law at a moment's notice.

In pages 265 and 266 of "The Analyst" for November, I reviewed "182—*Glad Tidings*," and "183—*Sad Tidings*," by Charles Landseer, which have been sold in this present Worcester Exhibition. I therein went so fully into the colouring, character, and expression of these two charming pictures that any similar notice here would appear wholly unnecessary. They were exhibited last year in Birmingham, and are included in my critical notices of that exhibition.

Constable, the R. A. has five landscapes, painted from nature; "50—*A Lane Scene—Harvest Noon*;" "62—*A Heath Scene*;" "68—*A Water Mill*;" "171—*The Glebe Farm*;" "185—*The Valley of the Stour—Morning*." This artist's power is here seen to great advantage. Those pictures have little of his spotty manner, and any amateur, who wishes to possess a very capital specimen of his pencil, has here a favourable opportunity to make a selection.

"No. 2—*The Installation of Captain Rock*," by Daniel M^cClise, a very young Irish artist, has, during many months past, excited a more general and intense sensation than any British work of art within my memory. During its exhibition in London, last year, it was the chief attraction, and formed a subject of conversation in the leading circles of fashion. The young artist became almost at once, like his celebrated countryman, Sheridan Knowles, one of the leading lions of the day. Report, not always to be trusted, and generally mixing fiction with truth, states him to be in his twenty-fourth year; that he received his first lessons in drawing in the Dublin Academy, and afterwards perfected himself as a student in the Royal Academy of London. I give this as a hear-say, which I have no particular reason to doubt or affirm with certainty. The great size of this picture afforded a wide field for his copious invention, which he has displayed in an astonishing variety of incident, character, attitude, and expression. An amateur, who has taken the trouble of counting, has declared there are seventy-eight figures in the various groups. To enter, therefore, into partial details, in this brief communication, would be an injustice to the artist, as any thing like a due notice would extend to a handsome octavo volume. I can, therefore, only offer a scanty outline of the subject.

Although it is termed "*the Installation of Capt. Rock*," it is also "*the Wake*" of his predecessor in command, who has fallen in a recent skirmish. The body of the deceased is laid out on a bier, with his daughter's arms clasped round the neck in an action of natural and forcible pathos. A "*Wake*" in Ireland is always a scene of festivity in honour of the dead, to which the neighbours and country-people for miles round flock. The widow, the daughter, sister, or any very near relation, may, without offending against the settled notion of decorum, give way to tears and grief; but the decency and spirit of the scene are considered to consist in mirth and enjoyment of refreshments, in which the glass is never forgotten. This explanation is necessary to account for the merriment of some of the groups contrasted with the fierce gesticulations and furious threatenings of those, who are attending the installation and joining with the newly-elected Captain Rock, in an oath to avenge the death of his predecessor.

The reader will therefore perceive that there are two actions represented, "*the Wake*" and "*the Installation*," and with this clue for his guidance he will be better able to enter into all its contrasted varieties, and to understand them more clearly. But there is also an episode of interest introduced. The place of meeting is in the ruins of an abbey, and a group is seen descending through a high breach in the walls, bearing in one of their companions supposed to be mortally wounded in an attempt to begin the work of vengeance on those by whose hands their yet unburied captain had fallen.

As a work of art this picture displays not alone any one particular high power, but a climax of high powers, and M^cClise may be truly said to have broke forth on the world, in this and his few preceding exhibitions, as an artist of copious invention, an able draftsman, a splendid colourist, and a genius capable of undertaking any class of subject, and, with due application, of succeeding in whatever he may choose to attempt.

John King exhibits three pictures; "1—*Abraham and Isaac in Thanksgiving after the Deliverance*;" "184—*Cordelia and King Lear*;" and a three-quarter length portrait of F. Danby, A. R. A.; the first is one of his best sacred subjects;—in 184, the head of Lear appears rather large; but this is more than atoned for by the simple grace and pathetic expression of Cordelia;—the likeness of Danby is said to be very true; the

picture is well coloured, and painted in a broad, mellow style. Miss Emma Jones's favourite Pup, and her Girl and Grapes, are well drawn and coloured, with much good taste, vigour of pencil, and forcible effect. The Orphans, by J. G. Wood, are two whole lengths, well grouped and drawn, with a simple expression of imploring sorrow; the mellow breadth of style with which the light and shadow are massed, does great credit to the artist. The landscape background is also successfully studied. There are three pictures by T. Barker, of Bath; "189—*Four Sand Boys*," and "159—*The Mower*," both the property of Mrs. Denham Cookes, and "160—*The Cotter's Family*;" the first is a fine specimen in his last and most powerful style; the second in his middle style, and the third in his early manner, about the time he painted the Woodcutter, which spread his reputation all over the kingdom. Handcock's Pet and Recovered Sailor have much merit; but the former would have a better effect if on a canvass of half the size. There are several other pleasing fancy subjects, which the visitors, I hope, will duly appreciate.

The London landscape exhibitors, and others at a distance, the two Fieldings, Baker, Lee, and Vickers, the two Laportes, Starke, and Prout have a number of precious gems. Canella has four very small street views in France, crowded with figures, painted with the correctness and spirit of Canaletti. "No. 65—*A Scene on the River Tamar, careening a Vessel by Night*," is a most admirable specimen by P. H. Rogers. The lovely gradations by which the moonlight and firelight are insensibly blended into one solemn tone, produce an effect not inferior in stillness and beauty to the finest moon and firelight by Vernet. There are two clever three-quarter-length portraits by R. Evans; the one of the Rev. Professor Lee, of Cambridge; and the other of Miss Harriet Martineau. The portraits and characteristic studies of Mrs. Joanna Cox, of Bewdley, display much agreeable taste and a high degree of practical excellence, with some inequalities. "No. 41," her half-length of Miss Montgomery, is a very attractive specimen of her style, which, if duly appreciated, cannot fail to crowd her sitting-room with commissions. The increasing pressure of severe indisposition renders me unable to hold the pen any longer, and compels me to shorten my communication, leaving the names and works of many clever artists unnoticed. This is a source of great regret to me, and I must only hope that what I have endeavoured to write, in hours of pain and debility, may, in some degree, contribute, with other advocates, to draw the attention of the public to the works of art in the present exhibition.

It would be a vain attempt to disguise or conceal the fact, that the first ten days have not been favourable, or at all encouraging. The number of visitors has been few, and only four pictures sold. If these circumstances could be concealed by my silence here, there are some persons who would deem concealment prudence. But when the broad facts are known to the few visitors, and spread by them, in the course of conversation, through the city, any exaggeration from me, however well intended, would not be of any avail, but it would cast a discredit on the whole of this communication. There are in every part of England persons whose vanity is flattered by having it to say, as a boast, "we have an exhibition in our town or city,"—and they conceive that to be a proof of their own taste and public spirit, and of the taste and public spirit of the vicinity. But the interests of the British school require that the truth must be told. I have seen many of those pretenders to taste and liberality confine their patronage to paying a shilling for their admission, and, with an economy a little out of place, save a shilling by borrowing

a catalogue from any other visitor in the room. I have known many of those *patrons* consider themselves discharged from all further exertion by paying five shillings for a season ticket; as to their buying a picture, a thought of the kind seems never to have entered their heads. They have supposed that these things passed unnoticed. But nothing can be more true, that an exhibition cannot have a negative issue—it cannot leave those whose education and rank in society render it their duty to promote every intellectual improvement of their fellow citizens, on the same ground of public estimation as before. If any such exhibition be well attended by visitors and purchasers, the local character will be raised, and with it the character of the higher orders. The success will be an honour to both. If, on the contrary, an exhibition of British excellence fails to produce a due impression upon the public, the failure will be a discredit to all; but more conspicuously to those who affect to lead the public on all other occasions.

Monday, June 22nd, 1835.

ORNITHOLOGICAL QUERY.

To the Editor of the Analyst.

SIR,—I observe with pleasure that you have several Ornithologists among your correspondents, and to whom I would beg leave to ask the names of two small birds which I am perfectly well acquainted with, but entirely ignorant of the names by which they are known in books. They are both summer birds, arriving soon after the swallow, and after breeding depart some time in the autumn.

The first I have always considered to be a kind of lark; at least it has a very striking resemblance to the tit-lark in general colour and markings, but differing much in size and manners. In size and shape it is more like the wood-lark; the tail being as short, and rather more bulky about the breast. It is a mute bird; having no kind of song, and its call, very seldom uttered, cannot be distinguished from the weak chirp of a young hedge-sparrow.

In the year 1823 I watched the manners of a pair of them which nestled in a piece of summer tares by the side of a foot-path along which I had occasion to pass and repass several times daily. The cock bird usually sat on an elevated tuft of the tares near the nest; and on my approaching near the place would fly and perch on a low branch of a hedge about twenty yards off, but very seldom on the topmost sprays.

My regard for the strange birds, and wishing to see as much of them as possible, prevented me examining the nest, nor from the same feeling did I see the eggs: but they brought out their brood before the tares were cut, and were seen for a few days afterwards *walking* among the stubble as larks usually do, though seldom on the wing. They were scared from the field at last by the plough, and were not seen by me afterwards.

This bird is certainly scarce in this country; as though I am acquainted with all our summer birds which breed in the southern counties of England, I do not remember to have noticed this above three or four times during a period of forty years. I imagine their usual summer habitat to be on the western shores of the European continent; but that a few stragglers occasionally cross the English channel. I may ask, however, is this the *Red Lark* said to be common in Yorkshire?

The second bird of whose name I am ignorant is another of the lark family, and which is much more common, having met with it every summer except the present, for many years past. It is an emigrant, arriving in April, and after breeding, retires from its usual haunts about October. It nestles among field peas in the country; and near London it may frequently be seen among dwarf fruit trees which have been headed down in the public nurseries. At a distance it may easily be mistaken for the yellow wagtail, its action and call being very similar. But it is a much smaller bird, and the tail is considerably shorter; and as near as can be, about the size and shape of the titlark. Never having had one in my hand, I can say nothing of the length of the hind spur, the distinguished mark of the lark family. But no bird is easier detected than this; the shrill and incessant call of the male may be easily heard by any intruder within five hundred yards of the nest. Its note is that of alarm; and exceedingly restless, flitting from place to place, apparently in a state of great uneasiness. The front of the neck and breast is bright yellow; back, upper part of the wings, and tail, olive brown. I have often pointed out this bird to persons* well versed in the knowledge of them, but they invariably called it the yellow wagtail; although they admitted that the latter is seldom met with far from water. I never saw the nest nor eggs of this bird, as they generally choose the thickest patches of the crop to nestle in, and at some distance from hedges or trees:—being certainly a ground bird.

In one old book I have seen a *yellow lark* described; but this is dropped by modern writers, at least, as far as my reading goes.

Yours, truly,
QUERIST.

CRITICAL NOTICES OF NEW PUBLICATIONS.

Philanthropic Economy, or the Philosophy of Happiness, practically applied to the Social, Political, and Commercial Relations of Great Britain. By Mrs. Loudon. Churton, London, 1835.

The most striking peculiarity in this volume is the *subject* chosen by a FEMALE, of some repute, it is true, as a writer of elegant fiction, but “Political Economy” is so very dissimilar in all respects to works of imagination, and is a science so intricate and complex even to deep-thinking men, that we were really astonished to find a lady possessed of sufficient courage to enter the lists in so disputatious and perilous a field.

There are many persons, well educated and well-disposed persons too, who have been deterred from approaching almost any subject connected with the general weal, by the too prevailing opinion that the science of political economy is something quite distinct from religion, morality, or philanthropy, something too speculative to be practical, too intricate to be understood, or too dull to be endured. To render this subject comprehensible to all descriptions of people, to obviate the unmeaning antipathies of many whose object is benevolence, and to spare them the arduous task of pursuing scientific deductions through ponderous volumes, or collecting scattered proofs from innumerable sources, in search of a knowledge of what are the exertions which they are called on by benevolence to make, is avowed to be the ostensible and laudable purport

* Among others, the late Mr. Sweet, author of “The British Warblers.”

of this work. How far this well-meant design is practically put into execution, it is our province to inquire—how it may fulfil the liberal intentions of the author, must be left to the gradual operations of time and opinion.

The attempt to condense from the ample materials now abroad into as short a compass as possible, and to couch in the plain unscientific phrases of common conversation, a sketch of the causes of the misery which so extensively prevails, and of the power possessed by enlightened opinion, honestly and constitutionally, to relieve it—to point out the most feasible modes of thoroughly effecting such purpose without calling in the fallacious aid of supposed expediency—and to demand of all who have power or influence cordial co-operation in a measure so beneficial to all ranks and classes of the community, is not the useless and theoretic whim of an hour. With much good reasoning and sound reflection are mingled many salutary suggestions for the enlarged end in view, which do honour to the searching scrutiny and generous motives of the author; we must be allowed, however, to state that in the volume before us are some conclusions on certain topics, impressed with much earnestness and force, but which, to our minds, require a little more of that deliberate investigation and sound judgment which the author has the power of applying to most subjects that come within the grasp of her capacious intellect. We will not further allude to this only drawback on the very superior merits of the work before us, but proceed at once to examine such portions of its contents as our circumscribed time and limits will allow.

The present depressed state of agriculture is unfortunately a topic of such harrowing interest to the hardy tiller of the soil, that we have been induced to direct our comments principally to this division of Mrs. Loudon's valuable treatise. An article on the small allotment system has many claims to attentive consideration, and we hope to see the humane landlord adopting more generally a plan which has been found in every instance of its trial so remarkably efficacious. From this section of the work we extract the following interesting facts:—

“Mr. Smith, of Southam, in Warwickshire, as an experiment, divided an acre of land into fifteen lots, among as many boys of about twelve years of age. The rent is five pounds per annum, which is paid with ease out of the sale of their produce, besides supplying the fifteen cottages of their parents amply with good vegetables. While so much has the cultivation of these gardens improved the habits of the boys, that though previously they were without any thing better to do than loiter or play about the streets of the village, they are all now in full employment for daily hire, and perform the work of their own allotments at over hours; and so great is the pride and pleasure they each take in the plot cultivated by their own hands, that they never suffer the productiveness of their crops to be deteriorated by insects, drought, or weeds, as is so often the case in larger and less carefully tended gardens.”

Many other instances of a like description are given, some portions of the land being sufficient to keep a cow and pigs, clearly shewing that the small allotment system to labouring farmers is one of the most beneficial and compassionate that ever has yet been suggested for that useful class or men. Besides the utility and comfort of such a system to the agricultural labourer, the parishes are in consequence, in places where the plan has become general, entirely freed from the onerous impost of poor-rates! Can the beneficent suggestion, fraught with such advantages, require an additional recommendation?

To write in such a charitable cause, to argue the matter in all its bearings, to point out its useful and ameliorating qualities, to impress it

on the land-owner with all the cogency of reasoning and all the zeal of kind and generous feeling—if it make but *one* convert in a proprietor of land, as yet insensible of the blessings he has the power to confer, and the family of *one* labourer be thereby saved from the degradation of pauperism and vice, and led to industry and habits of order and social and moral respectability, the considerate and talented author of this book will not have written in vain.

There is so much of that benevolent endeavour to benefit the whole human race—so much of that lofty and splendid comprehension which scrutinizes, embellishes, and lays open to clear investigation all intricate and available subjects—so much of the disinterestedness, philanthropy, and kind-heartedness which distinguish high-minded and intellectual women, that we hope often to see her unfold the treasures of her understanding on subjects more especially of such interesting inquiry.

To the objection likely to be urged that political economy is not a subject suited either to lady readers or lady writers, the author justly observes that when political economy is confounded with political intrigue, and consequently identified with corruption, contention, and party spirit, the less women interfere with such unfeminine topics the better: but when political economy is made subservient to philanthropic economy, or a “disposition of things” based on the principle of good-will to all, therefore calculated to alleviate want, enlighten ignorance, and cause the provocations of injustice to cease, and give place to the growth of the kindly sympathies, it acquires a legitimate interest for that gentler portion of the human race, who have ever been the soothers of all sorrow, the alms-givers of society, the binders up, in short, as far as their limited sphere might reach, of every wound which the rougher hands and more impetuous passions of man have inflicted.

Taken collectively, this is the production of an author of a more than usually comprehensive mind—of one who searches unflinchingly into all the recesses of knowledge, and thence deduces facts and illustrations with a clearness and vigour which it is the lot of very few to attain, even of long standing literary pretensions. We have scrutinized the contents of this volume with the vigilance we should have devoted to Adam Smith, Poulet Scrope, or any other author on the subject, of equal celebrity; we have not in this instance suffered our gallantry to warp our judgment, and all our regret is, that absolute want of space compels us to contract our present notice within so narrow a compass.

The Mechanics of Law-making. Intended for the use of Legislators, and all other persons concerned in the making and understanding of English Laws. By Arthur Symonds, Esq. Churton, Holles-street, 1835.

It has always been a source of complaint that the framers of our laws encumber their acts with such technical jargon that none but members of the legal profession can understand what is meant to be enforced. The present publication offers a plan of simplifying and making all Acts of Parliament intelligible to the community, by omitting the unmeaning parts, the repetitions, and the technicalities, which do but add to their bulk and mystification, without conferring a single benefit in exchange. From ignorance and want of skill in the workmanship of details, which our legislators leave to the routine performance of mere artisans, it is a common complaint that they seldom succeed in giving to the people a law intelligible either to themselves or the persons for whose especial guidance the law was designed. Acts of Parliament are not unlike a

piece of statuary, the value of which is unknown from being encrusted with mud and other defacing substances. The first step is to remove, carefully, this incrustation, by which its merit may be discovered and its beauty laid open to general view. This work of purification has been attempted by Mr. Symonds, and from the mode he has adopted, we can readily conceive that he will enlist many admirers into his system.

The statutes of a single session, it is well known by those who critically observe these matters, contain every variety of anomaly; and this must be the case until the legislature shall appoint persons to draw or revise all laws, and to couch them in an uniform expression. In some degree the present work would help the discussion of the legislature on this point; but in the meanwhile individual members will find that it is practically useful, to enable them to watch the exertions of others, and to complete their own. Half the labour of pushing a bill through Parliament would be saved, if it were made plain to ordinary understandings—for want of this intelligibility, the magistrates and the people often fall into egregious error. Our Acts of Parliament are written in the style of a foreigner who has learned the language out of book, with the aid of a grammar—grammatical rules are nowhere violated, yet it is difficult to recognise in his finical preciseness one's own language. A law should be written in the tone of the language of the time (for which we have Lord Coke's authority), and when that has become obsolete, it should be altered; but it will be found that the idiomatic structure, which has relation to the matter of a thing, does not change so fast: and the laws would help to preserve the sameness of meaning. To men who cling to the present system, and yet would introduce all improvements compatible with it, as well as to the more comprehensive-minded, and yet more practical reformer, who would make the laws as brief, as clear, and as simple as laws might be made, this book will unquestionably furnish some useful auxiliaries.

The articles which comprise the substance of this volume are arranged under seven distinct heads, as follow:—

The Art of Reading an Act of Parliament as at present written—the Art of Making a Law—on the Classification and Consolidation of the Statutes—Institutional Reforms connected with Law-making—Parallel Illustrations—Critical Notices on particular Statutes—Suggestions for a Statute of Directions and Constructions—and an Appendix, containing a glossary of proscribed words and phrases, and an abridged table of statutes of session 1834.

This is not decidedly a theoretical work wholly unfounded in practice, it is right to observe, although it contains many things that are new, many things that are questionable, and many that are imperfectly explained; still it is, on the whole, an attempt most creditable to the ingenious author, and from which the materials for improving the present wordy and complex system of our parliamentary acts may be profitably gleaned.

Poems: by Albius. Churton, Holles-street, 1835.

If these poems were composed so far back as the year 1825, as some of them are stated to have been by the author, we conclude that they were the first ebullitions of an imagination just beginning to feel its own restlessness, a precocious but rather praiseworthy attempt to picture the feelings, the passions, and the phantasies of incipient manhood. In that case they might have soothed the pensive hours of the happy dreamer, and as intellect expanded, have occasionally afforded a temporary

gratification by contrasting the immaturity of unfledged ideas with the soberness of advanced reason. But to *publish* such crude and abortive rhapsodies *ten* years afterwards, when the taste should have been perfected and the judgment matured, is an offence against literature which admits of no palliation. All men are not gifted with the fire of genius and the creative imagination of poets—but all men, before they publish, ought to have penetration enough to distinguish the ravings of absurdity from the brightness of intellect. To cull a given number of words from a dictionary and arrange them in the order of versification, is only the employment of a literary mechanic—a poet must be endowed with genius, fancy, sensibility, imagination, perception, a taste for general literature, a knowledge of the arts and sciences, and a thousand other qualifications not necessary here to enumerate, but known to be indispensable to sustain the character of a bard with fame and honour. To none of these essential endowments has Albius the least pretensions; we therefore strongly advise him to abandon the muses, and pursue an occupation more suited to the order of his talents. That we may not be supposed capable of checking the rising flame of genius by undue harshness and severity, we extract the following brief specimen from a short poem entitled “An Ode to Achilles, addressed to the British Fair”—

“Not long Pelides did survive his date,
But justly met the vengeful hand of fate,
To the dark shades by Paris’ shaft was sent,
For British dames to erect his monument.
To those fair nymphs who first devised the same,
Let this inscription further speak his fame.
‘This massive pile is to commemorate
The savage hero of the Grecian state,
Whose brutal courage to the world is known,
And deeds ascribed that never were his own;
The indelicate posture of whose effigy,
And immodest state of shameless nudity,
Bespeak a want of common decency,
To grace or figure not the least pretence,
Devoid of meaning—still more void of sense.
Unlike the noble Hector did he die
In the defence of his beloved Troy,
Struck by an arrow winged from Phœbus’ bow
Ere scarce he had pronounced his perjured vow,
As from the fane the fair Polyxena led
A mourning captive to a tyrant’s bed.
Anticipated in his lovely prize,
Called off by Pluto to the nether skies,
Albion’s fair daughters thus lament his doom,
And to their loved Achilles raise this tomb.’”

Verily, the man who could publish such trash as this must either have an overweening fondness for his own mental imbecility, or a very indifferent opinion of the perception and judgment of his readers. The only flickering of rationality which the author has evinced, is that of having concealed his name and adopted a fictitious signature.

Catherine Audley, the Recluse of Ledbury: an Original Historical and Local Drama, as performed at the Ledbury Theatre with the greatest approbation. Ledbury: Gibbs, Jun.

By bell, book, and candle, and the seven champions of Christendom, if here is not St. Catherine herself bodily, after many a long ramble we have had in vain attempts to capture her. Long life to the resuscitator

of Catherine Audley, long life to Dr. Booker, who brought the holy maid before us some months since—long life to her mare and colt, and the tracks made by them—long life to all concerned in their preservation—and above all, long life to this “original drama,” and the good people of Ledbury who received it with “the greatest approbation!!” After this statement, it might seem presumption in us to offer any critical remarks upon this production, did we not recollect that Lord Byron mentions a play which was performed at some private theatre with the “greatest approbation,” and “damned at Covent Garden with the greatest expedition!” As Shakspeare truly observes, “there is a tide in the affairs of men,” and so it appears to be with St. Catherine. After a long rest in her quiet bed, she has been in an extraordinary manner again suddenly brought before the public; Dr. Booker has illustrated her history in his poems, the tracks of her mare and colt have been recently made the subject of erudite investigation, and here we have an “original drama” developing her whole history. First, then, for the plot, and then for the poetry. St. Catharine appears to be the patron saint of the good town of Ledbury, in Herefordshire, and certain it is, that in the reign of Edward the Second, a devout recluse of the name lived in that town, where there is still an hospital bearing her name. Who this Catherine Audley really was, what duties called her to Ledbury, and induced her to take up her abode there, and when or by whom she received canonization are most unfortunately queries which cannot be satisfactorily answered, though very diligent inquiries have been recently instituted. Thus circumstanced, we hailed with joy the timely appearance of the present drama, and the successful researches of the author seem to have thrown a strong light upon the facts of the case; we hasten, therefore, to relieve the curiosity of our readers, by giving the following outline of this “original drama” which was performed (for 100 successive nights?) at the Ledbury theatre “with the greatest approbation.”

According to our author, Catherine Audley, (and, as legal reporters say, “with whom” was Mabel, her “bower-woman”) was the only child of Sir Andrew de Audley, in love with Edward the Second, and beloved by Mortimer Earl of March. The young lady is found, rather suspiciously, we think, wandering in men’s clothes with her “maid Mabel,” in the Forest of Dean, but for what purpose does not appear. At the same time Hugh de Mendax, a squire of Lord Montraver’s, gets entangled in the same forest, and is bound and robbed of a packet (with which he was intrusted to deliver to Mortimer, at Wigmore Castle,) by some “out-laws,” one of whom proves to be Sir Andrew de Audley himself. Catherine and her maid release Mendax, and Peter Coci, a Herefordshire bumpkin, who is made the butt of some drunken jokes; and are, in kind return, made prisoners by Roland, a squire of Mortimer’s, and Mendax, and carried to Wigmore Castle, where Mortimer, Queen Isabel, and Prince Edward are represented to be staying. On Catherine being introduced to Mortimer, as a prisoner, she is immediately recognised, and subsequently imprisoned in consequence of the taunting language addressed to him. Queen Isabel, hearing of this circumstance, has some suspicions of Mortimer’s intentions with regard to Catherine, sends for her, and a warm altercation takes place between the ladies. This scene is pleasingly interrupted by the appearance of the third Edward, who, rather strangely comes to solicit grace for Sir Andrew de Audley, whom he has just heard is returned from exile without permission, and is in arms against Mortimer. The Queen refuses. Catherine rushes forward, proclaims Edward King, and tells him Mortimer

has murdered his father. Mortimer now appears, and after a fierce affray, Prince Edward and Catherine are sent to prison. Catherine contrives to assist Edward to escape. Audley and the out-laws arrive—blood, fire, and confusion ensue—the castle is stormed and burned down, and Mortimer receives his quietus from Edward. All this is very dramatic, and therefore we can forgive our author outraging history, and forgetting the real capture of Mortimer at Nottingham Castle. But this is not the catastrophe of the story. This would not have had the “greatest approbation” of the Ledbury audience. The close therefore, the *denouement* of this singular and original drama is not the burning of the Church, the sack of the town, and other dramatic et cetera, but simply the circumstance of St. Catherine henceforward determining to board and lodge in the good town of Ledbury. This is introduced by the episode of a “Prophecy” uttered, we are left to suppose by the sybil who took the oracles to King Tarquin, and which is thus delivered by “Maid Mabel;”

“The last of the daughters of Audley’s old line,
A pilgrim shall wander from shrine unto shrine;
Without rest, without refuge, the maiden shall go,
Till she comes where the waters of Leddon’s stream flow;
There the bells of a grey and ivy’d church tow’r,
Without hands shall be peal’d to point out her lone bow’r;
When the virgin recluse, long by sorrow oppress’d,
Shall gain from the world a rude mansion of rest.”

St. Catherine receives this intelligence with very great complacency, and feels from “the holy calm pervading her mind” she shall soon arrive at the end of her toils. After the burning of Wigmore Castle, a guide and horses are given St. Catherine and her maid to proceed with to a place of safety, but under the conduct of stupid old Coci, they get lost. Here a most beautiful scene occurs, which being the best in St. Catherine’s history, we shall give entire, though we regret to understand, peculiar circumstances caused it to be “omitted in the representation.”

Scene—The Banks of Sapey Brook, with Tedstone-de-la-Mere in the distance.

Enter St. Catherine, Mabel, her Maid, and Peter Coci.

Peter. In sooth I fear a weary trudge is our’s,
Worse than I ever had in all our woods,
Attending on the swine. The colt is lost,
That blessed colt that never wore a shoe,
And her good mother.

Mabel. Oh ye blessed saints,
Look down on our distress, and if the rogues
Have led our steeds astray, drench them with rain,
Bid lightnings scath them; may the furious winds
Blow them o’er-ocean; may the floods o’erwhelm
Their hideous features, and the vultures tear.

St. Catherine. Where’r they tread
The stony bed
Of the brook shall show
Their tracks below;
Both colt and mare
Shall be shown there:
Where’r they spring
The patten-ring
Shall mark their tread
On the stony bed.

Peter. What do my eyes behold? on every stone
Where the brook gurgles, I perceive the mark
Of horses’ hoofs—and softly by the side

Of the mare's track, I see the little colt's
 Small round impression—down this wat'ry way
 The rascals must have gone—come on, come on,
 We soon shall overtake them.

Exit Peter.

Scene changes to the Hoar Stone in Tedstone. A thief is seen mounted on pattens leading a mare and colt along the bed of the brook.

Thief. These stones seem soft as clay, I cannot tread
 But something pulls me down ; the horses drag
 As if some lumb'ring wain, high pil'd in air
 Was at their heels. The curse of some pure saint
 Is on me ; ere a felon's doom is mine,
 I'll leave the nags to fate.

(As he goes off, Peter with a posse of countrymen with pikes and staves rush on him and bind him.)

Peter. So-ho—So-ho !
 Villain, we've track'd you to this last retreat,
 Spite of your wiles ; bind up the recreant knave,
 Screw him to the Hoar-stone, and from its dizzy peak
 There let him dangle, till the dripping springs
 Have from his head to every nether part
 Made him a stony mass hard as his heart.

Enter St. Catherine.

St. Cath. Long renowned in future story
 Be his memorable end,
 Here to Sapey's wild rocks hoary,
 Pilgrims shall for ever bend ;
 Here with awe the footsteps trace
 Of my mare upon the place,
 There the colt's with wonder view,
 And the ring's impression too ;
 Distant ages shall inquire,
 And the theme shall never tire.

This most impressive scene, we are persuaded, would have been received with the "greatest approbation" at Ledbury, and we repeat our regret at the "untoward" circumstances that prevented its representation. The writer seems to have thought that it was his duty rather to bring St. Catherine to Ledbury as soon as possible, as the ringing of the bells of Ledbury church "without hands" was of course an event more interesting to the good people of that place than any antecedent facts, however curious and important. We regret, however, to be obliged to remark, that at this critical point our writer breaks down, and when all his energies were required to bear upon the bells, he comes to a most lame and impotent conclusion—and his efforts to *bear the bell* prove vain. It was evidently his duty to have introduced the belfry and bells of Ledbury upon the stage, that the audience might have been fully satisfied that no trickery was practised upon them. It is useless to object that the belfry was too bulky—for we answer with Don Quixote in reply to the stupid actor who thought the stage could not admit the numerous throng proposed by the Don—

"So vast a throng the stage will ne'er contain,—
 Then make a new, or act it on a plain."

So our author was bound to show the audience the bells in question moving without hands. Instead of this, when Mabel sagely remarks that "nothing but my own ears (eyes she means) shall convince me we shall ever hear bells rung without hands," Peter is made to show the possibility of the phenomenon by reference to the bell of Marcle church.

This bell, Peter says, was "stolen by a Welch thief one night, and he was carrying it off between two horses; and the moment they began to trot, wiggle-waggle went the clapper, and waked all the village." And this is positively the only explanation we receive of the important and hitherto unaccounted-for phenomenon of the bells at Ledbury ringing "without hands," and which was the circumstance that induced St. Catherine to take up her abode at Ledbury. To this point, in particular, our author ought unquestionably to have paid the greatest attention, as the prosperity of Ledbury undoubtedly hinged upon it, and we suggest three points for his investigation, the results of which we recommend him to insert in a note in the second edition of his "original drama." 1st, when St. Catherine observes, "I have heard the peal rung by no human hand," how she had ascertained this extraordinary fact—2ndly, as Mabel observes "self-tolled were the bells," it would seem to imply that these Ledbury bells were not in fact rung by any hand at all, but were instinct with life; and therefore it seems important to ascertain whether the animation ascribed to the bells yet remains, and in what degree it differs from vegetable or animal life. 3rdly, how came bells of this peculiar manufacture to be only placed in the belfry at Ledbury? When these important points are fully cleared up, we purpose again to examine this "original, historical, and local drama," and quaff inspiration from the classic waters of the Leddon! But mercy! what a name—"the waters of Leddon" for an immortal river—we greatly fear it is a first cousin to the Lethe, and in imagination we already see St. Catherine, Mabel, the mare and colt, tracks and all, being ferried over the Styx by old Charon to pass from our sight for ever. Oh for one single draught of the Lethe to forget if it were possible, St. Catherine, her tracks, Mabel, the bells, Ledbury, and this incomparable drama, relating all their acts and deeds. But we fear the spirit of investigation has been so roused, that we shall be left in a similar situation to the Arabian enchanter, who had raised a spirit which he was unable to lay. So St. Catherine, having been once roused from her repose, will, we fear, track our footsteps for many a long year.

Graphic Illustrations of the Life and Times of Samuel Johnson, LL. D.
Part I. Murray, Albemarle-street, 1835.

These graphic illustrations will make an admirable companion to the new variorum edition of Boswell's *Life of Johnson*. Each part, it is announced, will contain at least five engravings; and if these engravings should all be of the style and character which distinguish the first number, just published, a fact which the high respectability of the publisher insures, nothing more perfect can be wished for. There are in this part a view of Lichfield, the birth-place of Johnson, drawn by Stanfield, and exquisitely engraved by Finden; a portrait of Michael Johnson, of Lichfield, the father of the lexicographer, also engraved by Finden, from a drawing in the possession of Mr. Murray; a portrait of Edward Cave, the founder of the *Gentleman's Magazine*, drawn by Kyte, 1740, and engraved by Scriven; a view of St. John's Gate, Clerkenwell, the residence of Cave, with a fac-simile of his hand-writing; a fac-simile of a letter from Gilbert Walmesley to J. Colson, Esq. F.R.S.; and a fac-simile extract of a letter from Dr. Johnson to Edward Cave, in 1738.

Explanatory notes and interesting anecdotes, copies of letters, and other elucidatory and interesting particulars accompany the plates, which are of two sizes—quarto, for the convenience of collectors,

and octavo, for more general use. There are few libraries, public or private, we conceive, into which these charming graphic illustrations will not be admitted.

The Life and Works of William Cowper. Edited by the Rev. T. S. Grimshawe, A.M. Vols. III. and IV. Saunders and Otley, Conduit-street, 1835.

This unique edition of Cowper is now brought down to its 4th volume, and, both in its embellishments and its typography, we cannot but observe, it still continues to be distinguished by the same excellent taste and general correctness.

In the 4th vol. we perceive the learned editor has, for an instant, suspended the progress of the correspondence, to make room for a few pertinent observations on Cowper's great and laborious undertaking, the translation of Homer. Five years of intense application, it seems, were devoted to this employment; being, doubtless, stimulated in his exertions by the idea that he was in that work building up for himself a fame which should immortalize him. On the 1st of July, 1791, the complete version was published in two quarto volumes, the *Iliad* being inscribed to his young noble kinsman, Earl Cowper; and the *Odyssey* to the Dowager Countess Spencer. If any circumstance can prove more strongly than another, the infatuation of men of genius, it is that which took possession of Cowper's mind on the subject of this translation. He knew that Pope had failed, who had called to his aid all the varied charms of which poetry was capable, and yet he fancied that the strength of his blank verse would more than compensate for the sweetness of Pope's metrical numbers. The idea strangely wandered in his brain, that by giving a faithful yet free translation, he should embody a genuine and graceful representative of the admired original. It is true that he is more faithful than Pope, but far less rich and spirited—what he has gained in strength, he has lost in elegance and in melody. We read Cowper as a task—we dwell on Pope, and commit his lines to memory. Although there are many passages distinguished by much grace and beauty, and we allow that in the pages of Cowper there is a closer interpretation of Homer's meaning, yet, on the whole, the lofty spirit, the bright glow of feeling, the "thoughts that breathe, the words that burn," are not sufficiently sustained. Each of these distinguished writers, to a certain extent, has failed, not from any want of genius, but because complete success is difficult, if not unattainable. Homer still remains untranslated, because of all poets he is the most untranslatable. He seems to claim the lofty prerogative of standing alone, and of enjoying the solitary grandeur of his own unrivalled genius, allowing neither to rival nor to friend, to imitator nor to translator, the honours of participation; but exercising the exclusive right of interpreting the majestic simplicity of his own conceptions in all the fervour of his own poetic fancy, and in the sweet melody of his own graceful and flowing numbers. He who wishes to understand and to appreciate Homer, must seek him in the charm and beauty of his own inimitable language.

We had intended to give a few specimens from each translator, to invite comparison, but we find that we must defer such intention to our next number. Want of space, and not inclination, must be our excuse.

A Literal Translation of Plato's Apology of Socrates and The Crito, with Notes, original and selected. By Henry Vane Hemmings, B. A. Ex-Scholar Trinity College, Dublin, Translator of the Phædo. Dublin, Gibton and Overend, 7, Capel-street, 1835.

Plato, an author most difficult to understand, has met with a translator in Mr. Hemmings, who has ably rendered him in a style remarkable for its clearness; always faithful, generally elegant. To translate literally, and, at the same time, elegantly, is a task confessedly one of the most arduous that a literary man can attempt, and we might add, the most unprofitable; for while the scrutinizing eye of the learned critic would be apt to overlook the difficulty of the original work, it would fall with a withering glance on any little inelegancy which the correct rendering of idiomatic language seldom fails to produce. From those who are acquainted with the language of Plato, Mr. Hemmings is sure to meet with inviting encouragement, and even those who are unacquainted with that philosopher, and who are totally ignorant of Hellenic literature, will read Mr. Hemmings' book with a pleasure rarely produced by literal translations. The student will find in it all he requires—a translation, not only literal, but elegant and faithful.

The notes are not the least worthy the attention of the scholar, the selections are principally culled from Foster, Fischerus and Dacier, &c. and do credit to the taste as well as judgment of the translator; whilst those that are original show into what able hands the translation of this work has fallen.

In conclusion, we should recommend this version to the student and general reader, as an excellent elucidation of the difficulties of one of the greatest philosophers of antiquity.

Wanderings through North Wales. By Thomas Roscoe, Esq. author of the Landscape Annual. Tilt, and Simpkin and Marshall, London; and Wrightson and Webb, Birmingham, 1835.

The third part of this beautifully illustrated work has just made its appearance, and it deserves more than a mere passing notice. It contains three exquisite engravings, by Radclyffe, from drawings by Cattermole, Cox, and Creswick. The first is Dolbadern Tower; the next Cader-Idris, from Kymmer Abbey; and the third, Bolingbroke's False Homage to Richard II. at Flint Castle. The letter-press, too, is in keeping with the engravings, and Mr. Roscoe has made it an unusually interesting appendage. Surely this very talented little publication must ere now be in general request; at all events, its merits require that it should be so.

Treatise on the Geography and Classification of Animals. By William Swainson, Esq. Longman and Co., 1835.

This is the second of a series of volumes on Zoology, in Lardner's *Cabinet Cyclopædia*, by Swainson, and will, we anticipate, prove useful to all students of Natural History; more particularly to those scientific students who are unable to procure the *Northern Zoology* of Richardson and Swainson, the *Linneæan Transactions*, the *Zoological Journal*, and other expensive works of the kind. The geography of animals, so ably treated in the volume before us, is a subject which has hitherto been but little attended to. Our author divides the world into five zoological provinces, viz. Europe, Asia, America, Africa, and Australia.

These provinces, respectively, occupy five chapters; their zoology and limits are traced with the hand of a master, and in a manner which we have never yet seen equalled.

We shall now proceed to remark on the English names used in this volume. In referring to those of birds at pp. 42-3, we find "vultur, L. true vultures." And we would ask, what else can a *vultur* be but a true vulture? It is, of course, sufficiently plain that Swainson intends by so doing, to distinguish this genus from the other groups of *Vulturidæ*. But why not find other generic names for those? *Gypætus* he designates "bearded vultures," thus giving a specific and generic name where the latter only is required. *Pastor* he calls "sheep-bird." We cannot too strongly censure the practice of making *bird* the scientific name of any species. It was a very favourite practice with Wilson—thus we have the crow blackbird (*Quiscalus versicolor*), the bluebird (*Sialia Wilsonii*, Swains.), the redbird; and amongst British birds we have the blackbird (*Merula vulgaris*, Wil.), and the greenbird (*Coccothraustes chloris*.) Wilson, however, was no systematist, and may, therefore, be pardoned; but for Swainson to fall into this error, is perfectly inexcusable. Again, in the volume before us, we find "*Anthus*, B. titlark." Why not pipit? and why not *dunmoor*, instead of the clumsy name "finch warbler?" We are glad to see that Swainson has rejected the absurd name *goatsucker*, but are surprised to find him adhering to the old name *Caprimulgus* (*auctorum*.) These remarks may be deemed frivolous, but every philosophic naturalist will, doubtless, on consideration, admit them to be of no little importance.

The second part is dedicated to the consideration of the different systems which have been promulgated. This division of the subject is admirably treated, and we regret that our limits will not permit us to make any extracts; but we will endeavour to give our readers some idea of its contents. Our author has shown the difference between a natural and an artificial system, with great clearness and precision. He also appears to speak most impartially of all naturalists, and to give each his due. How different is this from the "querulous tone" in which the Introduction to Rennie's Montagu's *Ornithological Dictionary* is written. In the latter work, we find all naturalists and all systems abused. Swainson also discusses the merits of the principal systems, and more especially the circular theory of the great Macleay, at some length. The dichotomous system of Dr. Fleming, we agree with our author in thinking totally unworthy of regard. He justly remarks, that any one might make fifty other dichotomous systems, all of which would be as useless as those already promulgated. In the formation of a binary system, it is only necessary to fix on some one character, and to have "distinct conceptions on positive and negative characters." A single glance at Fleming's *British Animals* will show the fallacy of such a system, and it is drawn up by one who is possessed of no mean talents. Swainson justly considers the classification of Linnæus, "as a whole, much more comprehensive than that of Cuvier." p. 127.

Part IV. is dedicated to "A familiar explanation of the first principles of practical and scientific Zoology, with suggestions for a plan of studying the details of each department." In this division, the difference between a practical and a scientific naturalist is pointed out. Our author appears to us somewhat to undervalue the former class; in our opinion, both are equally useful, and both mutually assist each other. Let each choose that line which best suits his inclination, and let him not, because *he* has taken to it, despise another for studying in

another department.—The whole of the 368th paragraph is very just, and we are sorry that our limits will not admit of our transcribing it here.

We have only been able to take a very cursory view of the contents of this useful volume, but we inform the scientific student of Natural History, that he cannot have a better book than this if he wishes to obtain a thorough knowledge of the classification and geographical distribution of animals. In no other work would he find such a mass of sound information in so small a compass, and in so popular a style. These volumes in the *Cabinet Cyclopædia* are, perhaps, not indispensable to the professed zoologist, as every one who has any title to the name of a scientific zoologist, must be familiar with the principles inculcated in the *Fauna Boreali-Americana*; but to those who are unable to obtain this work, the volumes now in course of publication are invaluable, and will, we have no doubt, sustain the very high reputation of Swainson as a scientific zoologist.

A Manual of Entomology, from the German of Dr. Hermann Burmeister.

By W. E. Shuckard, M. E. S. with original Notes and additional Plates Nos. I. to V. Churton, Holles-street, and Tilt, Fleet-street, 1835.

This is a translation of a popular work on that branch of Natural History which treats of insects, and comprises a valuable introduction to the science of Entomology. To investigate the nature of insects, to shew how the insect is organized and formed, and to explain the generalization and development of the various vital phenomena observable in the class, is the useful and professed object of the publication, and to our judgment it will prove an important assistant to the entomologist. There are occasionally interspersed, we observe, many original experiments and observations, in addition to its other scientific matter; which, with the facts elicited by the laborious investigations of the most eminent scientific men on this subject, must necessarily render this work extremely useful and popular. We believe that the study of insects, although more general than it was a few years back, is still less cultivated than most other branches of Natural History, notwithstanding it has the power to give an intense interest to those who duly reflect on the purposes which insects have to accomplish in the economy of nature. If this monthly publication should stimulate a more general inquiry into a species of knowledge, which to much attractiveness adds extreme usefulness, and that it will do so we anticipate with confidence, the labours of the ingenious translator will not have been exerted in vain.

According to the prospectus, this work will be completed in about eighteen numbers, and when we look at the faithfulness of the translation, its general neatness, and the number of its plates, we must, in common justice, say that it ranks amongst the most respectable of the cheap periodicals.

The Arboretum Britannicum. By J. C. Loudon, F. L. H. G. & Z. S. &c. June, 1835. Longman and Co.

The Architectural Magazine; the Gardener's Magazine; and the Magazine of Natural History. June, 1835. Conducted by J. C. Loudon, Longman and Co.

In the first-named work, by Mr. Loudon, there are sixteen plates, eight from zinc and eight from wood, all from specimens in the garden of the London Horticultural Society at Chiswick; and although in one or two of the wood engravings there is a trifling defectiveness,

which the liberal author promises to replace by more perfect ones, we consider them, taken together, as remarkably good specimens of this mode of engraving. It is tolerably well known, we believe, that wood engravings are far more expensive than impressions taken from zinc or stone; notwithstanding which, Mr. Loudon, with his characteristic liberality, has, we perceive, engaged to adopt wood, in future, for all the smaller trees, because that mode of engraving enables the artist to give their character and their botanical details with greater accuracy than the zinc.—The letter-press, we perceive, consists of the concluding part of “The History of the Introduction of Foreign Trees and Shrubs into Ireland,” and “Of the Foreign Trees and Shrubs introduced into Britain in the 19th century,”—subjects which are as interesting as useful.

The Architectural Magazine is distinguished by some original communications of no ordinary talent. The continuation of the article “On the origin, excellences, and defects of the Grecian and Gothic Styles of Architecture,” by the late Dr. James Anderson, will be found particularly interesting; and the papers by Bridgen, Lamb, and Kent, are indications of the high talent engaged in this undertaking.

Mr. Forbes’s continuation of “A Natural History Tour in Norway,” and various other communications, replete with instruction and amusement,” occupy the pages of “The Magazine of Natural History;” and “The Gardener’s Magazine” is fully equal to the useful purposes of its preceding numbers. The “Observations on the gardening of Belgium,” by John Maddison, Esq. in the latter publication, are, we perceive, brought to a close, and are as intelligent as the first portions of them led us to expect. Most of the other papers, too, lay claim to considerable merit, for many of them throw new light on the pleasing and healthful occupation of horticulture.

Harold de Burun. A Semi-dramatic Poem; in six Scenes. By Henry Austen Driver, author of “The Arabs,” a Poem. Longman and Co. 1835.

Amongst the multiplicity of publications, in verse and prose, of every calibre and every form, to do honour to the memory and genius of the bard of Newstead, there are few which exceed in interest “Harold de Burun.” Viewed as a mere romance, or as a vehicle for poetic imagery, this work would impart no slight gratification; but when associated in its connexion with the distinguished poet, whom its title obliquely designates, it becomes additionally attractive.

The author avows that the especial object of the undertaking has been to develop what he conceived to be the true character of Lord Byron, and to endeavour to dispel that fantastical one which has been reared and nursed amidst the magnifying haze of popular credulity. He is here introduced as an interlocutor, as a contemplatist, or as an auto-vindicator: the author has anticipated sentiments to which he conceived he was silently but gradually veering; and amidst the pendulous vibrations of his mind between the wide extremes of superstition and scepticism, has attempted to shew that its natural tendency was to settle down into the steadfast principles of virtue. This assumption he draws from his peculiar mood and general tone of thought. In what manner the author has achieved his intentions, will be best evinced by a quotation from the work.

Scene II.—HAROLD, and MALEDICUS, *Harold’s Evil Genius.*

HAROLD.

Is’t not enough that you have dragged me forth
To shew me in the gladiatorial ring

To gaping multitudes, but, even here,
Beyond the arena, I must still be goaded ?
 Have I no home where I may rest awhile
 From these assaults ?

MALEDICUS.

Ask your antagonists !—
 Can they forget who trod them in the dust,
 And then upraised them only to display
 How much they had been sullied by the fall ?

HAROLD.

True—true ! a generation must pass by.
 The unforgiving will remember me
 When I am low ; and lift triumphant hands,
 Knowing that mine will be so still : in phalanx
 They will assail me when I have no shield
 But the cold marble o'er my colder breast ;
 Which yet shall not repel them : they will strike
 In anger—that they cannot make me *feel*.
 But I shall mock them from the sepulchre
 With haughty silence—for with living power
 I *now* invest my ashes with that stern
 Posthumous attribute ! Go, tell them this—
 I scorn them from my soul ! Mine is a pride
 Which, though the heart be shattered, stands erect
 Amidst the ruins of its citadel :—
 A feeling that endureth—and endures ;
 Exists—and suffers ; but which yet no rack
 Shall wrench from out my bosom, but with life ;
 And e'en with parted life shall not resign
 Its power and influence. They may stride my dust,
 But nought shall quench that spirit, till *they* yield
 Their *all* of life to the oblivious soil :—
 Their names e'en frailer than their bones.

[MALEDICUS *disappears*.

In the 5th scene, Harold holds converse with a hermit in his cell, wherein he gives a confidential history of his early life, mixed with extenuations and regrets, too often the sad attendants of high-wrought genius. This colloquy is full of instruction and interest.

The characters in this poem are,—Harold de Burun, Percy, his friend, Minstrel, Hermit, Maledicus, Harold's Evil Genius, Patronus, Harold's Better Genius, Teresa, &c., and exclusive of the extract we have given, there are some interesting portions of the different scenes, which want of space alone deters us from transplanting to our pages. The reader, in Percy, will instantly recognise the unfortunate Byshe Shelley ; and in Teresa, the still more unfortunate Italian Countess de Gambia, both which characters are sustained with much of the impress of generous feeling, and with a striking similitude to the best accounts published of these Lord Byron's chosen friends.—This volume is well worthy of perusal, and cannot fail, we think, to get into general circulation.

Of the Power, Wisdom, and Goodness of God, as shewn in the Works of the Creation, by examples taken from among the least of terrestrial creatures, also from the mineral and vegetable productions of the Earth ; and from the inferior animals up to Man. Edwards, London, and Lees, Worcester, 1835.

Our present number was completed when this volume came into our hands, we have, therefore, no time to examine its contents, at least,

with all the carefulness required. From a hasty glance it appears to us well adapted to lead young persons to contemplate with suitable feelings and reverence the stupendous works of nature. In fact, it is a really popular introduction to Natural History; and comprising the essence of many elaborate works, it may be correctly defined a "Bridgewater Treatise" for the young and thoughtful inquirer.

A Selection of British Birds, from Drawings by C. L. E. Perrott, Honorary Corresponding Member of the Worcestershire Natural History Society; and dedicated, by permission, to Her Royal Highness the Landgravine of Hesse Hombourg. Folio, No. I. Robert Havell, Zoological Gallery, London.

This selection comprises all the birds which are known in the county of Worcester, either as perpetual or only transitory residents, and of many others peculiar to neighbouring counties, faithfully copied from nature by the talented author, Mrs. C. L. E. Perrott, of The Chantry, Fladbury, Worcestershire, so well known and appreciated for her intellectual pursuits and her varied accomplishments. Many hundreds of the feathered tribe, accurately copied from nature, the work of her own experimental skill, will, we understand, ultimately appear in this work, of which five are comprised in the number before us.

The engraver, Robert Havell, duly and justly estimated as the celebrated graver of the birds of America, is the artist by whom the birds in this number have been engraved and coloured; and had he not previously earned a well-merited fame in this beautiful branch of the art, this publication would have stamped him as a leading member of his difficult profession.

Nor is the accompanying letter-press, so full of information, *practical* and lucid information, to be passed over with an ordinary comment. The diligence and keen observation of an enthusiast devoted to the soul-absorbing subject, is perceptible in every page, and Mudie himself might pick up scraps of accumulated knowledge by a diligent perusal.

The five birds comprised in this number, are—the common fowl, or domestic cock; the ring-dove, wood pigeon, quail, or cushat doo; the raven; the whin-chat; and the blue titmouse. Of these, if a preference can be given, we think it leans a little in favour of the domestic cock—but they are all executed with remarkable fidelity and skilfulness, without the least stiffness of position or unnatural contortion.

This publication was put into our hands a few hours only previously to the present number of "The Analyst" being completed. To this cause must be attributed the concise form which this critical notice assumes. As the numbers continue to be issued, however, we shall again draw attention to their merits. The plan seems to be so well arranged, that we have no doubt it will continue to display throughout the same taste and research, and charm of execution, which distinguish the first number; in that case, no ornithologist ought to be without a work so useful for study and reference. We now conclude our brief observations, by again promising some further comments in a succeeding publication.

LITERARY AND SCIENTIFIC.

MECHANICS' INSTITUTION, BIRMINGHAM.

Mr. Wallace commenced his third Lecture at this Institution, "On the Mental Faculties of Man," by passing a ray of light through a glass cube filled with water. The light was directed at an angle of about twenty-seven degrees, with a perpendicular falling upon the centre of the bottom plate of the cube, at which point a wafer was placed, that intercepted the light when the cube was empty. After entering the medium through a hole in a board, placed upon the upper surface, it was found to proceed in a vertical direction, and, by the action of the upper and under surfaces, to be suspended in the central plane. From this plane, when the eye was directed underneath, it was clearly seen to issue; thus shewing that light is not bent, or refracted, in one continued line through any transparent medium, but that its direction is solely influenced by the nature of the surfaces employed. To this peculiar modification in the operation of light, the lecturer referred all those phenomena which are witnessed in the Polar and Torrid regions, and sometimes in more temperate climates; such as the appearance of objects above the horizon, when they are really beneath it; the multiplication and inversion of the images of objects; and the distortion of these images, either by elongation or contraction. To this peculiar modification was also referred the nature of our sensations within the eye, which, of necessity afforded us perceptions derived in all cases from the images of objects suspended within the various mediums communicating them, and not from the objects themselves. The next subject alluded to was the origin of our conceptions of number, proportion, and magnitude, illustrated by drawings; and of relation and comparison, as derived from the peculiar conformation of the eye itself; out of all which the principles of perspective were stated to arise, and from which it was intimated that we had derived the sciences of arithmetic, geometry, and trigonometry. The various scales made use of for measuring palpable distances, in order to correct and assist the eye, were then alluded to, and explained to be necessary, in consequence of the physical properties of transparent bodies, which cause the images of objects to be presented at apparent, instead of at real distances, in every instance.

The fourth, and concluding lecture, treated of man in reference to the material world. In the course of the lecture, man was considered as a recent inhabitant of this planet; and the particular localities which he had inhabited—as they are described in ancient history—were stated to be still open to the inspection of the traveller, with very few exceptions. At the same time, it was maintained that the crust of the earth bore evident marks of distinct epochs, having long intervals of time between them—the various strata containing organic remains peculiar to each; but that the ruins of the abodes of mankind were visible only upon the exterior part of this crust; and that no true organic remains of the human race had ever been discovered within it. The diminution of the major axis of the ellipse described by the orbits of comets, was alluded to as an argument that these bodies were incipient worlds, similar to what the earth bore evident marks of having originally been; as was stated to be manifest from an examination of the various regular strata of which its crust is composed. The deposition of these various strata were considered as the result of animal architecture, and the assimilating powers of organized bodies; and a conclusion was drawn that inorganic matter was the result of these various operations, aided by subsequent crystallization, fermentation, or (its consequence) fusion by volcanic agency. The position which man holds in the scale of creation was inferred from all these considerations; and the gift of speech—which *he* only enjoys—was viewed as a means imparted to him of arriving at a comparatively perfect knowledge of the constitution of matter, by the aid of reason and future inquiry.

NEW PUBLICATIONS,

From May 8, to June 8.

- Abdy's (E. S.) *Residence and Tour in the United States*, 3 vol. sm. 8vo, 30s.
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- Bosworth Field, a Tale, by Author of "Anne of Brittany," 3 vol. sm. 8vo, 31s. 6d.
- Bowles' and Nichols' *History, &c.*, of Lacock Abbey, Wilts, 8vo, 20s.; 1. p. 30s.
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- Brockedon's *Road-Book from London to Naples*, 8vo, 24s.; imp. 8vo, 31s. 6d.; India, 2l. 2s.; imp. 4to, 3l. 3s.
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 Proceedings of the Zoological Society, Part 2, 1834, 8vo. 4s.
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 Robinson's Vitruvius Britannicus, (Hardwicke Hall,) fol. 3l. 3s.
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 Wife (The); or, Women as they are, fcap. 5s. 6d.

PREFERMENTS, MARRIAGES, &c.

PREFERMENTS.

The Rev. J. Garbett, Fellow and Tutor of Brasenose College, has been presented by the Principal and Fellows of that Society, to the valuable Rectory of Clayton, in the County of Sussex.—The Rev. Haddy Williams, M. A., has been instituted to the Vicarage of Avenbury, Herefordshire, void by the resignation of the Rev. John Durand Baker, on the presentation of the King.—The Rev. Bryan Sneyd Broughton, B. A., has been presented to the Rectory of Elmley Lovett, in this county, void by the cession of the Rev. John Lynes, Clerk, LL. B. Patron the said Rev. John Lynes.—The Rev. John Hardy, B. A., has been licensed by the Bishop of Gloucester, to the Perpetual Curacy of the Lea, vacant by the death of the Rev. Charles Whatley, on the nomination of the Rev. A. Matthews, M. A., Vicar of Linton, Herefordshire.

At the recent examination for Scholarships at Trinity College, Dublin, Mr. Hamilton was one of the successful Candidates. We mention the name of this gentleman in particular, on account of the extraordinary fact of his having obtained this distinction although he has been blind from his infancy.

MARRIAGES.

At Shrewsbury, John Pryse Jones, Esq., of Coffronyd, Montgomeryshire, to Mary, second daughter of the late Rev. Herbert Oakeley, D.D., of Oakeley, Salop.—At Camberwell, George Jones, Esq., surgeon, late of Alcester, Warwickshire, to Anne, relict of Thomas Snepp, Esq.—At Wickhamford,

Worcestershire, Mr. Henry Cooper, B. A. late of Worcester College, Oxford, only surviving son of the late Rev. H. P. Cooper, of Evesham, to Felicia, second daughter of Mrs. Sawyer, of Wickhamford.—Thomas Kidley, Esq. M.D., of Byford, to Mary, only daughter of the late J. L. Pateshall, Esq., of Hereford.—At Edgbaston, near Birmingham, James Lang, Esq., of Hampstead, to Emma, daughter of William Wood, Esq.—At Richmond, Surrey, by the Rev. J. Peel, Prebendary of Canterbury, Henry Brown, Esq., of the Bombay Civil Service, to Eliza Anne, youngest daughter of the late Sir Harry Verelst Darrell, Bart.—The Rev. Frank George Hopwood, A. M., second son of Robert Gregge Hopwood, Esq., of Hopwood Hall, and grandson of John, fifth Viscount Torrington, to the Lady Eleanor Mary Stanley, youngest daughter of the Right Honourable the Earl of Derby.—At St. George's, Hanover Square, by the Bishop of Lichfield and Coventry, J. David Watts Russell, Esq., eldest son of J. Watts Russell, Esq., of Ham Hall, Staffordshire, and Biggin House, Northamptonshire, to Mary Neville, youngest daughter of John Smith Wright, Esq., of Rempstone Hall, Nottinghamshire.—At Bristol, William Spry Stock, Esq., nephew of the Rev. J. Hume Spry, D. D., late of Birmingham, to Anna Jane, eldest daughter of the late William Ravenhill, Esq., of Hereford.

DEATHS.

In Portland Place, after a few days' illness, of a boil in his throat, the Earl of Longford. His Lordship has left a widow and ten chil-

dren. He was 61 years of age.—In his 88th year, Sir Samuel Wathen, of Woodchester, one of his Majesty's Justices of the Peace for Gloucestershire.—At the Rectory House, Bangor, Flintshire, the Rev. Maurice Wynne, LL. D., of Llwyn, Denbighshire, Vicar of Much Wenlock, Shropshire, aged 75.—At West Bromwich, Lucy, wife of W. Bagnall, Esq., of West Bromwich, and daughter of Capt. Sherwood, of Wick, near Worcester.—At Kinlet Hall, in her 10th year, Lucy, fourth daughter of William Lacon Childe, Esq.—On his passage home from India, James Theodore, fourth son of Mr. George Ryder Bird, of Edgbaston, near Birmingham.—At Hall Green, near Birmingham, Sarah, youngest daughter of the late Richard Nott, Esq., of Worsley, in the Parish of Rock, Worcestershire.—Aged 90, John Inge, Esq., of the Charter House, near Coventry.—Aged 30, at Beaumaris, S. H. Trevor, Esq., youngest son of the late Rev. Dr. Trevor, Prebendary of Chester.—At the Vicarage, Bromyard, in the 14th year of her age,

Helen Maria, second daughter of the Rev. William Cooke.—Aged 77, Mrs. Mary Matthews, sister to Captain Matthews, of Rose Villa, near Tewkesbury.—In Tewkesbury, in her 79th year, Mary, relict of John Martin, Esq.—At Malvern, Louisa Augusta, wife of the Rev. Francis Duncan, of Alcester, and eldest daughter of Colonel Elrlington, of the 47th Regiment.—At his house, 8, Cornwall Terrace, Regent's Park, David Carruthers, Esq., M. P. for Hull.—At Dolydd-ycau, Talyllyn, near Dolgelly, of apoplexy, Dr. William Owen Pughe, the celebrated Welsh Lexicographer. His memory will be long cherished by the lovers of Cambrian Literature.—At Camden Hill, Birmingham, Ann, the wife of Owen Johnson, Esq., in the 65th year of her age.—Aged 55, highly respected by all who knew him, Mr. Henry Jacob, surveyor and auctioneer, of Newhall-street, Birmingham.—Aged 19, Mary, second daughter of Mr. Ward, bookseller, of Stratford-upon-Avon.

METEOROLOGICAL REPORT.

May	Barometer.		Thermometer		Remarks.		Wind.
	Morn.	Even.	Max.	Min.	Day.	Night.	
1	29.005	29.003	49.5	43	Fine, clouds, rain	Rain	N.
2	29.000	29.065	54	40	Wind, clouds, showers	Cloudy	N.
3	29.150	29.225	53	41	Sun, clouds, lt. shows	Fine	N. W.
4	29.264	29.410	55	40	Fine, clouds, sun	Fine	N. W.
5	29.430	29.300	64	48	Fine, sun	Showery	W. vble.
6	29.200	29.226	59.5	45	Fine, clds. sun, l. rain	Fine	W. vble.
7	29.318	29.430	60	46.5	Fine	Fine	N. W.
8	29.420	29.400	64	52.5	Fine, clds. sun, lt. rain	Fine	S. W.
9	29.270	29.118	63	49	Fine, sun, clouds	Showery	S. W.
10	29.110	29.220	57	43	Fine, clds. showers, hail	Showery	S. W.
11	29.310	29.160	56	47	Fine, cloudy, wd. l. rain	Fine	W. high
12	29.160	28.930	59.5	44	Fine, clouds, and sun	Showers	W.
13	28.995	28.810	60	37	Cloudy, fine, even. rain	Heavy rain	S. E.
14	28.830	28.942	43	40	Rain	Cloudy	E.
15	29.030	29.050	51	43.5	Clouds, heavy showers	Fine	Calm, vbl.
16	29.110	29.235	57.5	47	Fine, sun, clds, & lt. sh.	Fine	S.
17	29.235	29.280	55	48	Fine, sun, lt. showers	Fine	S.
18	29.250	29.270	64	52	Cloudy, sh. light sh.	Fine	Calm S.
19	29.250	29.240	63.5	50	Cloudy, sun, lt. showers	Rain	Calm, vbl.
20	29.315	29.500	53.5	46	Cloudy, rain	Fine	Calm N.E.
21	29.598	29.600	60.5	47	Fine, sun	Fine	N.
22	29.520	29.495	66	48	Fine, hazy, sun, lt. sh.	Fine	N.
23	29.506	29.485	65	51	Fine, sun	Fine	N.
24	29.516	29.305	66	50	Fine, sun, clouds	Fine	W.
25	29.208	28.975	58	45	Clouds, sun, showers	Rain	W.
26	28.860	28.910	58	42	Fine, hazy, heavy sh.	Hea. showers	W. vble.
27	29.080	29.215	56	44	Clds. sun, sh. dt. thun.	Fine	W. vble.
28	29.345	29.405	57	43.5	Clds. sun, sh. dt. thun.	Fine	N. E.
29	29.495	29.550	57.5	43	Fine, sun, clouds, & haze	Fine	N.
30	29.525	29.505	58	40.5	Fine, sun, clouds, & haze	Fine	N. E.
31	29.440	29.315	65	45	Clds, sun, hazy, even. rn.	Rain	Calm, N.

Malvern, June, 1835.

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Chalk & Hall, Printers, Worcester.









